Network Camera

User's Guide

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P/N: 956YL50001

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Chapter 1

Introduction

This Chapter provides details of the Network Camera's features, components and capabilities.

Overview

The Network Camera has an Integrated Microcomputer and a high quality CMOS digital-Image-Sensor, enabling it to display high quality live streaming video over your wired LAN, the Internet, and for the Network Camera, an 802.11g Wireless LAN.

Using enhanced MPEG-4 technologies, the Network Camera is able to stream high quality video and audio directly to your PC. The high compression capabilities of MPEG-4 reduce network bandwidth requirements to amazingly low levels.

A convenient and user-friendly Windows program is provided for both viewing and recording video. If necessary, you can even view video using your Web Browser, on a variety of software platforms.

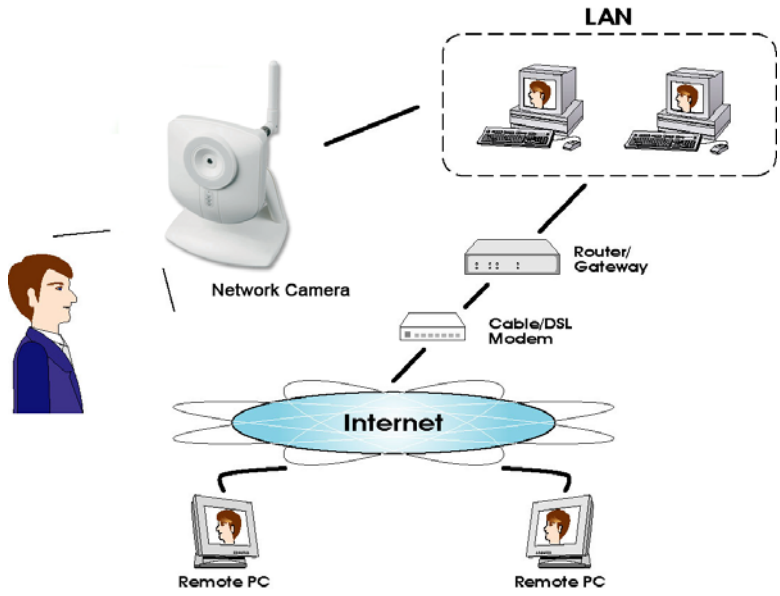


Figure 1: Network Camera

Features

- ***Standalone Design.*** The Network Camera is a standalone system with built-in CPU and Video encoder. It requires only a power source and a connection to your LAN or Wireless LAN.
- ***Dual Video Support.*** The Network Camera can support both MEPG4 and MJEPG video for different image compression.

- ***Stream Live Video to Multiple Users.*** The MPEG4 encoder and HTTP server built into the camera generate a ready-to-view video stream. Just connect to the camera using your Web browser or the provided Windows utility to view live video.
- ***Suitable for Home, Business or Public Facilities***. Whether for Home, Business or Public Facility surveillance, or just for entertainment and fun, the Network Camera has the features you need.
- ***Multi-Protocol Support.*** Supporting TCP/IP networking, SMTP (E-mail), HTTP and other Internet related protocols, the Network Camera can be easily integrated into your existing network.
- ***Easy Configuration.*** A Windows-based Wizard is provided for initial setup. Subsequent administration and management can be performed using a standard web browser. The administrator can configure and manage the Network Camera via the LAN or Internet.
- ***Viewing/Recording Utility.*** A user-friendly Windows utility is provided for viewing live video. For periods when you are absent, or for scheduled recording, this application also allows you to record video to an ASF file on your PC. The recorded files are in a standard Windows Media format, and thus usable by a wide variety of programs if required. Up to 5 users can view the live video simultaneously by using the provided utility.
- ***Motion Detection.*** This feature can detect motion in the field of view. The Network Camera will compare consecutive frames to detect changes caused by the movement of large objects. This function only works indoors due to the sensitivity of the CMOS sensor. When motion is detection, an E-mail alert can be sent, or some other action may be triggered.
- ***Flexible Scheduling.*** You can limit access to the video stream to specified times using a flexible scheduling system. The Motion Detection feature can also have its own schedule, so it is active only when required.
- ***Syslog Support.*** If you have a Syslog Server, the Network Camera can send its log data to your Syslog Server.
- ***Audio Support.*** You can listen as well as look! Audio is encoded with the video if desired. You can use either the built-in microphone or an external speaker.

Internet Features

- ***User-definable HTTP port number***. This allows Internet Gateways to use "port mapping" so the Network Camera and a Web Server can share the same Internet IP address.
- ***DDNS Support.*** In order to view video over the Internet, users must know the Internet IP address of the gateway used by the Network Camera. But if the Gateway has a dynamic IP address, DDNS (Dynamic DNS) is required. Since many existing Gateways do not support DDNS, this function is incorporated into the Network Camera.
- ***NTP (Network-Time-Protocol) Support.*** NTP allows the Network Camera to calibrate its internal clock from an Internet Time-Server. This ensures that the time stamp on Video from the Network Camera will be correct.

Security Features

- ***User Authentication.*** If desired, access to live video can be restricted to known users. Users will have to enter their username and password before being able to view the video stream. Up to 20 users can be entered in the user database.
- ***Password-Protected Configuration***. Configuration data can be password protected, so that it only be changed by the Network Camera Administrator.

Wireless Features (Wireless IP Camera with MPEG4/MJPEG only)

- ***Standards Compliant.*** The Network Camera complies with the IEEE802.11g (DSSS) specifications for Wireless LANs.
- ***Supports both 802.11b and 802.11g Standards.*** The Network Camera supports both 802.11b and 802.11g standards.
- ***Speeds to 54Mbps.*** All speeds up to the 802.11g maximum of 54Mbps are supported.
- ***Wired and Wireless Network Support.*** The Network Camera supports either wired or wireless transmission.
- ***WEP Support***. Full WEP support (64/128 Bit) on the Wireless interface is provided.
- ***WPA/WPA2 Support***. The WPA Personal/WPA2 Personal standard is also supported, allowing advanced encryption of wireless data.
- ***WPS Support.*** The Network Camera supports WPS (Wi-Fi Protected Setup) PBC (Push Button Configuration) mode and Pin Code mode (numeric code). It makes the security feature easier to configure.

Physical Details - Network Camera

Front - Network Camera

Lens	No physical adjustment is required or possible for the lens, but you should ensure that the lens cover remain clean. The image quality is degraded if the lens cover is dirty or smudged.
Microphone	The built-in microphone is mounted on the front.
Power LED (Green)	**On** - Power on. **Off** - No power. **Blinking** - The *Power* LED will blink during start up. This will take 15 to 20 seconds.
Active LED (Green)	**Off** - Camera is not capturing video. **Blinking** - Camera is capturing video
Network LED (Green)	**Off** - Wireless or LAN is not connected or camera is not sending/receiving data. **Blinking** - Data is being transmitted or received via the LAN or Wireless connection.

Rear - Network Camera

Antenna	Attach the supplied antenna here. The antenna is adjustable; best results are usually obtained with the antenna positioned vertically.
SPKR out	If required, an external speaker can be plugged in here.
Power Input	Connect the supplied 5V power adapter here. Do not use other power adapters; doing so may damage the camera.
LAN port	Use a standard LAN cable to connect your Network Camera to a 10/100BaseT hub or switch. **Note:** • Plugging in the LAN cable will disable the Wireless interface. Only 1 interface can be active at any time. • The LAN cable should only be connected or disconnected when the camera is powered OFF. Attaching or detaching the LAN cable while the camera is powered on does NOT switch the interface between wired and wireless.
Reset Button	This button is recessed; you need a pin or paper clip can be used to depress it. It can be activated at any time the camera is in the "ready" mode. • **WPS PBC Mode**. For the Wireless IP Camera with MPEG4/MJPEG, when pressed and released (less then 3 seconds), the Network Camera will be in the WPS PBC mode (Auto link mode). • **WPS Pin Code Mode**. For the Wireless IP Camera with MPEG4/MJPEG, when pressed and held for over 3 seconds, the Network Camera will be in the WPS Pin Code mode.

- **Reset to manufacturer default value and reboot**. When pressed and held over 10 seconds, the settings of Network Camera will be set to their default values.

Note:

After this procedure is completed, the *Power* LED will blink three times to confirm that the reset was completed successfully.

Package Contents

The following items should be included: If any of these items are damaged or missing, please contact your dealer immediately.

1. Network Camera
2. Antenna (Wireless IP Camera with MPEG4/MJPEG only)
3. Power adapter
4. Installation CD-ROM
5. Quick Installation Guide

Chapter 2

Basic Setup

This Chapter provides details of installing and configuring the Network Camera.

System Requirements

- To use the wired LAN interface, a standard 10/100BaseT hub or switch and network cable is required.
- To use the Wireless interface on the Wireless IP Camera with MPEG4/MJPEG, other Wireless devices must be compliant with the IEEE802.11b or IEEE802.11g specifications. All Wireless stations must use compatible settings.

The default Wireless settings are:

Mode: Infrastructure
SSID: ANY
Wireless Security: Disabled
Domain: USA
Channel No.: Auto

Installation - Network Camera

1. Assemble the Camera

Screw the supplied antenna to the mounting point on the rear.

Attach the Camera Mount to the camera.

2. Connect the LAN Cable

Connect the Network Camera to a 10/100BaseT hub or switch, using a standard LAN cable.

For Wireless IP Camera with MPEG4/MJPEG, plu gging in the LAN cable will disable the Wireless interface. Or y 1 interface can be active at any time.

The LAN cable should only be connected or disc onnected when the camera is powered OFF. Attaching or d etaching the LAN cable while the camera is powered on does NOT switch the interface between wired and wireless.

The first time you connect to the camera, you sh ould connect the LAN cable and configure the Network Camer a with appropriate settings. Then you can unplug the L AN cable and power off the camera. The Network Camera will e in wireless interface when you power on the camera again.

3. Power Up

Connect the supplied 5Vpower adapter to the Network Camera and power up. Use only the power adapter provided. Using a different one may cause hardware damage.

4. Check the LEDs

- The *Power* LED will turn on briefly, then start blinking. It will blink during startup, which takes 15 to 20 seconds. After startup is completed, the *Power* LED should remain ON.
- The *Network* LED should be ON.

For more information, refer to *Physical Details - Network Camera* in Chapter 1.

Setup using the Windows Wizard

Initial setup should be performed using the supplied Windows-based setup Wizard. This program can locate the Network Camera even if its IP address is invalid for your network. You can then configure the Network Camera with appropriate TCP/IP settings for your LAN.

Subsequent administration can be performed with your Web browser, as explained in ***Chapter 5 - Web-based Management***.

Setup Procedure

1. Insert the supplied CD-ROM into your drive. If the setup program does not start automatically, run **NeutralCamera.exe** in the root folder.
   - You will see the *Welcome* screen shown below.
   - Click the *Setup Camera* button to start the setup Wizard

Figure 2: Welcome Screen

2. The next screen, shown below, will list all the Network Cameras on your LAN.

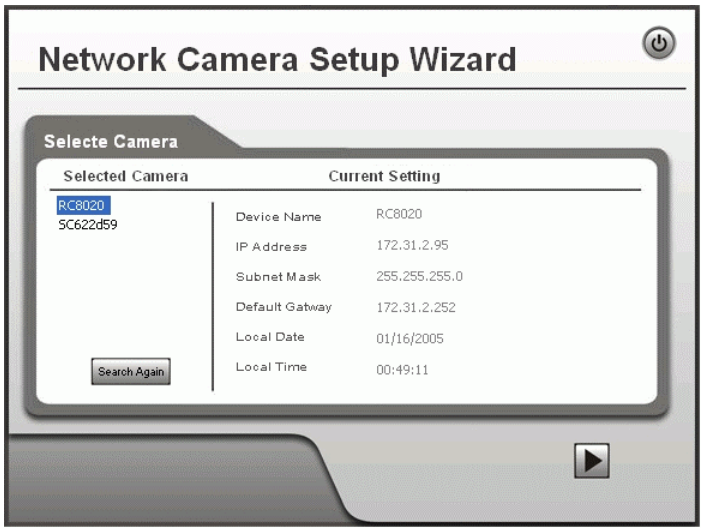


Figure 3: Camera List Screen

- Select the desired Camera from the list on the left. The current settings for the selected Camera will be displayed in the table on the right.
- Click *Next* to continue.

3. You will be prompted to enter the *Administrator Name* and *Administrator Password*, as shown below.
   - If using the default values, enter **`administrator`** for the name, and leave the password blank.
   - Otherwise, enter the *Administrator Name* and *Administrator Password* set on the ***Maintenance*** screen.

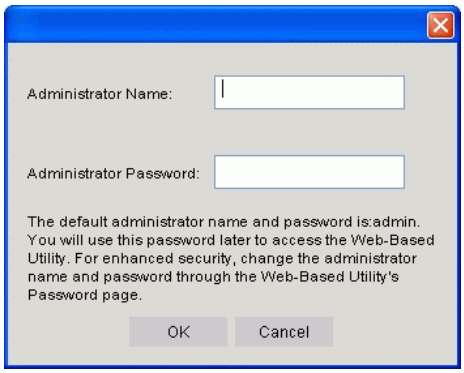


Figure 4: Password Dialog

4. On the following **IP Address Settings** screen, shown below, choose *Fixed IP Address* or *Dynamic IP Address*.

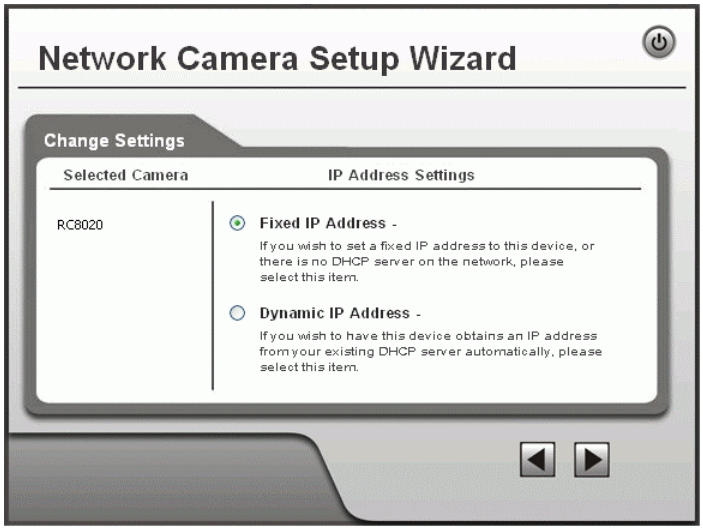


Figure 5: Fixed or Dynamic IP Selection

- *Fixed IP Address* is recommended, and can always be used.
- *Dynamic IP Address* can only be used if your LAN has a DCHP Server.

Click *Next* to continue.

5. If you chose *Fixed IP Address*, the following **TCP/IP Settings** screen will be displayed.

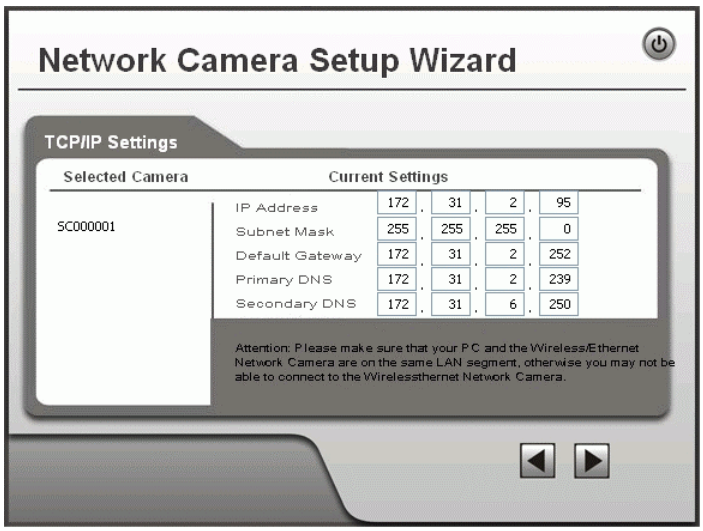


Figure 6: TCP/IP Settings

- Enter an unused **IP Address** from within the address range used on your LAN.
- The **Subnet Mask** and **Default Gateway** fields must match the values used by PCs on your LAN.
- The **Primary DNS** address is required in order to use the E-mail alert or Dynamic DNS features. Enter the DNS (Domain Name Server) address recommended by your ISP.
- The **Secondary DNS** is optional. If provided, it will be used if the Primary DNS is unavailable.

Click *Next* to continue.

6. This screen allows you to enter a suitable **Description**, and set the correct **Time Zone**, **Date**, and **Time**. Make any desired changes, then click *Next* to continue.

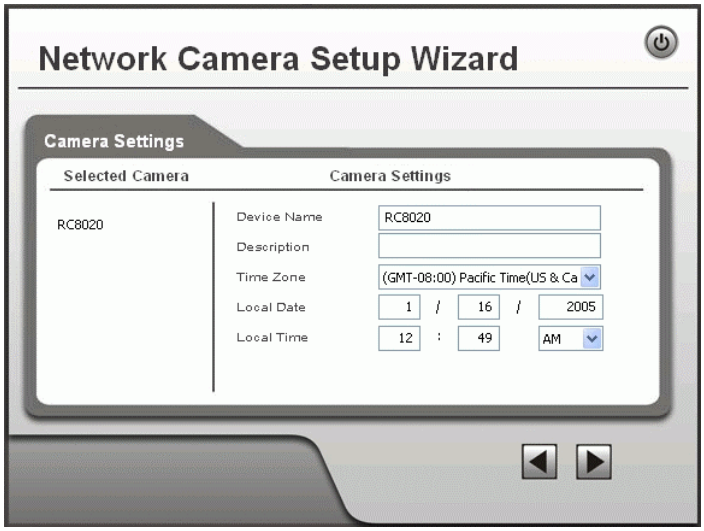


Figure 7: Camera Settings

7. The next screen, shown below, displays all details of the Network Camera.
   - Click *Next* if the settings are correct
   - Click *Back* to modify any incorrect values.

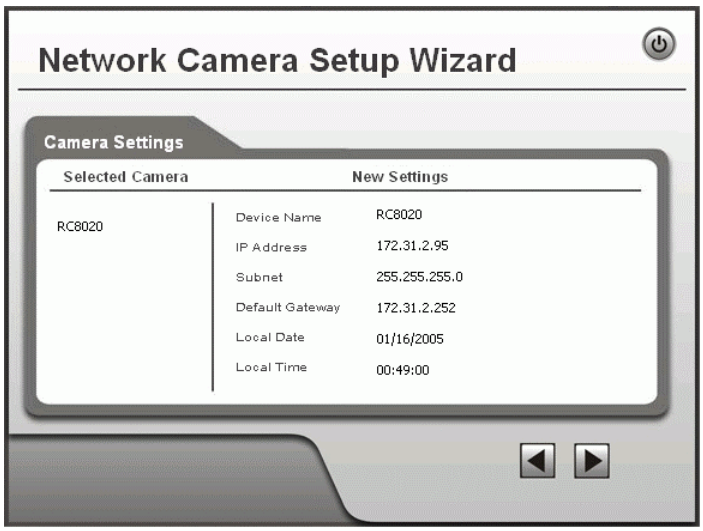


Figure 8: Save Settings

8. Click *OK* to confirm that you want to save the new settings. If you want to cancel your changes, click *Cancel*.

Figure 9: Confirm Screen

9. After clicking *OK*, you will see the screen below.

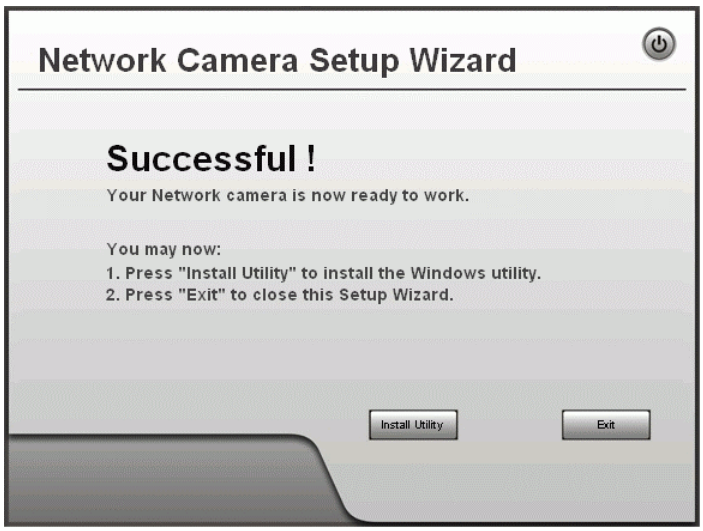


Figure 10: Final Screen

Clicking the *Install Utility* button will install the Viewing/Recording utility described in ***Chapter 6 - Windows Viewing/Recording Utility***.

10. Click *Exit* to end the Wizard.
    Setup is now complete.

Chapter 3

Viewing Live Video

This Chapter provides basic information about viewing live video.

Overview

After finishing setup via the Windows-based Wizard, all LAN users can view live video using Internet Explorer on Windows.

This Chapter has details of viewing live video using Internet Explorer.

But many other powerful features and options are available:

- To view multiple cameras simultaneously, or record video (either interactively or by schedule), you should install the Windows Viewing/Recording utility. Refer to ***Chapter 6 - Windows Monitor/Playback/IP Recorder Utility*** for details on installing and using this program.
- The camera administrator can also adjust the Video Stream, and restrict access to the video stream to known users by requiring viewers to supply a username and password. See ***Chapter 4 - Advanced Viewing Setup*** for details.
- To make Live Video from the camera available via the Internet, your Internet Gateway or Router must be configured correctly. See *Making Video available from the Internet* in ***Chapter 4 - Advanced Viewing Setup*** for details.

Requirements

To view the live video stream generated by the Network Camera, you need to meet the following requirements:

- Windows 98/98SE, Windows 2000, Windows XP.
- Internet Explorer 6 or later.

Connecting to a Camera on your LAN

To establish a connection from your PC to the Network Camera:

1. Use the Windows utility to get the IP address of the Network Camera.
2. Start Internet Explorer.
3. In the Address box, enter "HTTP://" and the IP Address of the Network Camera.
4. When you connect, the following screen will be displayed.

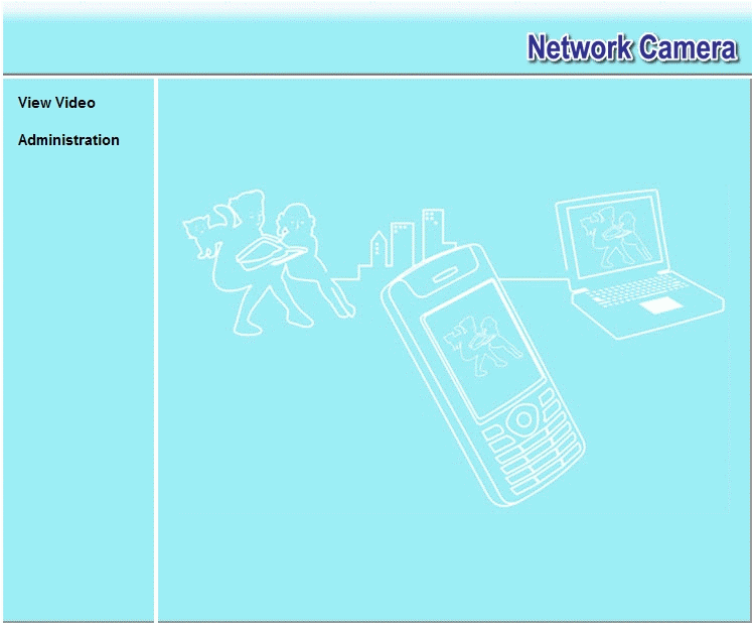


Figure 11: Home Screen

5. Click *View Video*.
6. If the Administrator has restricted access to known users, you will then be prompted for a username and password.
   Enter the name and password assigned to you by the Network Camera administrator.
7. The first time you connect to the camera, you will be prompted to install an ActiveX component (OCX or CAB file), as in the example below.
   You must install this ActiveX component (OCX or CAB file) in order to view the Video stream in Internet Explorer.
   Click the "Yes" button to install the ActiveX component.

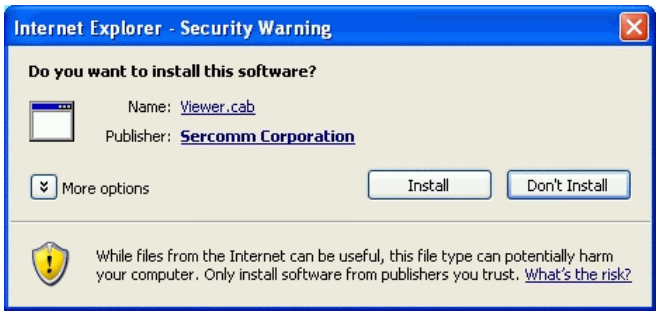


Figure 12: ActiveX OCX Prompt

8. Video will start playing automatically. There may be a delay of a few seconds while the video stream is buffered.

Connecting to a Camera via the Internet

You can NOT connect to a camera via the Internet unless the camera Administrator has configured both the camera and the Internet Gateway/Router used by the camera.

See *Making Video available from the Internet* in ***Chapter 4 - Advanced Viewing Setup*** for details of the required configuration.

Also, you need a broadband Internet connection to view video effectively. Dial-up connections are NOT supported.

To establish a connection from your PC to the Network Camera via the Internet:

1. Obtain the following information from the Administrator of the camera you wish to connect to:
   - Internet IP Address or Domain Name of the camera.
   - Port number for HTTP connections.
   - Login (username, password) if required.
2. Start Internet Explorer.
3. In the Address box, enter the following:

   `HTTP://Internet_Address:port_number`

   Where `Internet_Address` is the Internet IP address or Domain Name of the camera, and `port_number` is the port number used for HTTP (Web) connections to the camera.

   Examples using an IP address:

   `HTTP://203.70.212.52:1024`

   Where the Internet IP address is `203.70.212.52` and the HTTP port number is `1024`.

   Example using a Domain Name:

   `HTTP://mycamera.dyndns.tv:1024`

   Where the Domain name (using DDNS in this example) is `mycamera.dyndns.tv` and the HTTP port number is `1024`.

4. When you connect, the following screen will be displayed.

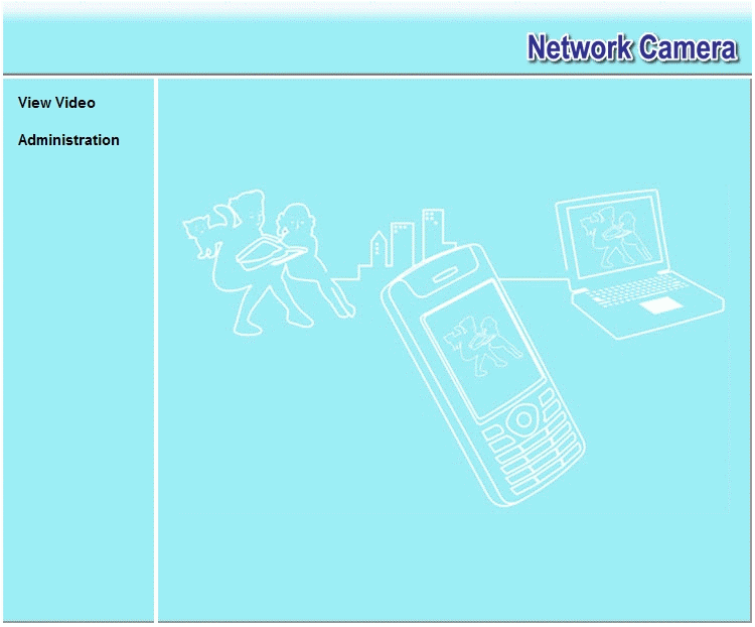


Figure 13: Home Screen

5. Click *View Video*.
6. If the Administrator has restricted access to known users, you will then be prompted for a username and password.
   Enter the name and password assigned to you by the Network Camera administrator.
7. The first time you connect to the camera, you will be prompted to install an ActiveX component (OCX or CAB file), as in the example below.
   You must install this ActiveX component (OCX or CAB file) in order to view the Video stream in Internet Explorer.
   Click the "Yes" button to install the ActiveX component.

Figure 14: ActiveX OCX Prompt

8. Video will start playing automatically. There may be a delay of a few seconds while the video stream is buffered.

Viewing Live Video

After installing the ActiveX component, you will be able to view the live video stream in its own window, as shown below.

Figure 15: View Video Screen

There are a number of options available on this screen, accessed by select list, button or icon. See the table below for details.

General Options

These options are always available, regardless of the type of camera you are connected to.

Resolution. Use this drop-down list to select the desired video size.

Zoom. A digital zoom feature is available. To zoom in on a section of the window, click this icon. Then use your mouse to select the section you want to magnify. Click the icon again to disable the zoom feature.

Snapshot. Click this to take a single JPEG "snapshot" image of the current video.

Flip. Click this to have the image swapped top-to-bottom.

Mirror. Click this to have the image swapped left-to-right.

Audio On. This icon is displayed if audio is On. Click on the icon to turn audio Off.

Volume. If audio is enabled, use this slider to adjust the volume.

Setup. Select the desired setup format from the drop-down list.

Chapter 4

Advanced Viewing Setup

This Chapter provides information about the optional settings and features for viewing video via the Network Camera. This Chapter is for the Camera Administrator only.

Introduction

This chapter describes some additional settings and options for viewing live Video:

- Adjusting the video image
- Controlling user access to the live video stream
- Making video available from the Internet
- Using the *Motion Detection* feature

Adjusting the Video Image

If necessary, the Network Camera Administrator can adjust the Video image.

To Adjust the Video Image:

1. Connect to the Web-based interface of the Network Camera. (See ***Chapter 5 - Web-based Management*** for details.)
2. Select *Administration*, then *Video & Audio*. You will see a screen like the example below.

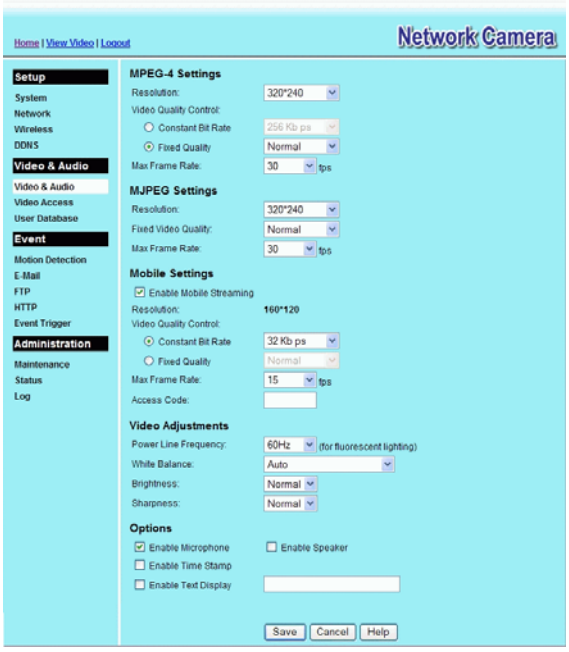


Figure 16: Video & Audio Screen

3. Make the required adjustments, as explained below, and save your changes.

MPEG-4 Settings	
Resolution	Select the desired video resolution format. The default resolution is set to 320*240.
Video Quality Control	• Constant Bit Rate: Select the desired bit rate. The default is set to 1.2 Mbps. • Fixed Quality: Select the desired option. The default fix quality is set to Normal.
Max. Frame Rate	Select the desired Maximum bandwidth for the video stream. Note that you can specify EITHER the Bandwidth OR the Frame Rate, not both. If the Bandwidth is defined, the frame rate will be adjusted as necessary to achieve the specified frame rate. The default values for bandwidth is **Unlimited**, which allows you to specify the desired frame rate.
MJPEG Settings	
Resolution	Select the desired video resolution format. The default resolution is set to 320*240.
Fixed Video Quality	Select the desired fix quality. The default fix quality is set to Normal.
Max. Frame Rate	Select the desired Maximum bandwidth for the video stream. Note that you can specify EITHER the Bandwidth OR the Frame Rate, not both. If the Bandwidth is defined, the frame rate will be adjusted as necessary to achieve the specified frame rate. The default value for bandwidth is **Unlimited**, which allows you to specify the desired frame rate.
Mobil Settings	
Enable Mobil Streaming	Enable streaming video for the mobile device by checking this checkbox.
Resolution	The default resolution is set to 160x120.
Video Quality Control	• Constant Bit Rate: Select the desired fix bit rate. • Fixed Quality: Select the desired option. The default fix quality is set to Normal.
Max. Frame Rate	Select the desired Maximum bandwidth for the video stream.
Access Code	Enter the code for accessing the live video from camera through cell phone connection.
Video Adjustment	
Power Line Frequency	Select the power line frequency (50Hz or 60Hz) used in your region, to improve the picture quality under florescent lighting.
White Balance	Select the desired option to match the current environment and lighting.
Brightness	If necessary, you can adjust the brightness to obtain a better image. For example, if the camera is facing a bright light, the image may be too dark. In this case, you can increase the brightness.

Sharpness	Select the desired option for the sharpness. You can select a Sharpness value between -3 and 3.
Options	
Microphone	Enable audio by checking this checkbox. Using Audio will increase the bandwidth requirements slightly.
Speaker	Enable speaker sound by checking this checkbox.
Time Stamp	If enabled, the current time will be displayed on the Video image.
Text Display	Enable this setting if you want text to be displayed on the Video image, and enter the desired text - up to 20 characters. This feature is often used to identify each camera when multiple cameras are installed.

Controlling User Access to the Video Stream

By default, anyone can connect to the Network Camera and view live Video at any time.

If desired, you can limit access to scheduled times, and also restrict access to known users.

To Control User Access to Live Video:

1. Connect to the Web-based interface of the Network Camera. (See ***Chapter 5 - Web-based Management*** for details.)
2. Select *Administration*, then *Video Access.*
3. Set the desired options for **Access**.

Access

If the Video Access is disabled, users cannot connect using either their Web Browser or the Windows utility. However, viewing video is still possible by logging in as the Administrator.

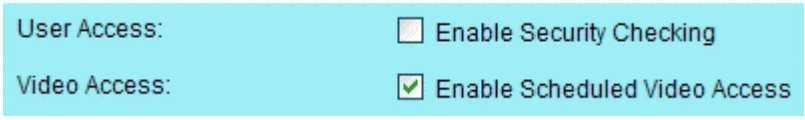


Figure 17: Controlling User Access

See ***Chapter 5 - Web-based Management*** for further details about using the *Video Access* and *User Database* screens.

Making Video available from the Internet

If your LAN is connected to the Internet, typically by a Broadband Gateway/Router and Broadband modem, you can make the Network Camera available via the Internet. You will need to configure your Router or Gateway to allow connections from the Internet to the camera.

Router/Gateway Setup

Your Router or Gateway must be configured to pass incoming TCP (HTTP) connections (from Internet Viewers) to the Network Camera. The Router/Gateway uses the *Port Number* to determine which incoming connections are intended for the Network Camera.

This feature is normally called *Port Forwarding* or *Virtual Servers*, and is illustrated below. The Port Forwarding/Virtual Server entry tells the Router/Gateway that incoming TCP connections on port 1024 should be passed to the Network Camera. If necessary, check the user manual for your Router/Gateway for further details.

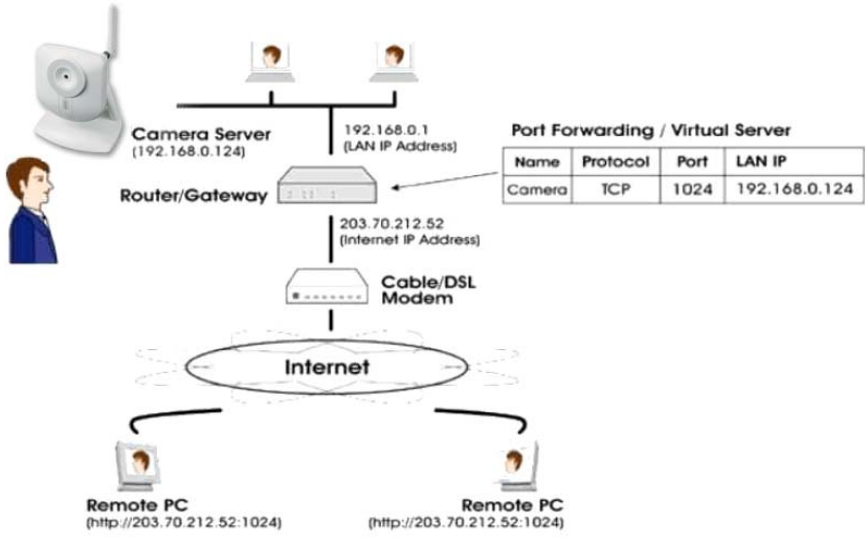


Figure 18: Connecting via the Internet

The "Port" for the *Port Forwarding / Virtual Server* entry above is the " Secondary Port" number specified on the *Network* screen of the Network Camera.

Network Camera Setup

The Network Camera configuration does NOT have be changed, unless:

- You wish to change the port number from the default value (1024).
- You wish to use the DDNS (Dynamic DNS) feature of the Network Camera.

HTTP Port Configuration

Normally, HTTP (Web) connections use port 80. Since the Network Camera uses HTTP, but port 80 is likely to be used by a Web Server, you can use a different port for the Network Camera. This port is called the *Secondary Port*.

The default *Secondary Port* is 1024. If you prefer to use a different port number, you can specify the port number on the Network Camera's ***Network*** screen, as shown below.

Figure 19: Network Screen

See ***Chapter 5 - Web-based Management*** for further details on using the ***Network*** screen.

Viewers need to know this port number in orde to connect and view live Video, so you must inform viewe s of the correct port number.

DDNS (Dynamic DNS)

Many internet connections use a "Dynamic IP address", where the Internet IP address is allocated whenever the Internet connection is established.

This means that other Internet users don't know the IP address, so can't establish a connection.

DDNS is designed to solve this problem, by allowing users to connect to your LAN using a domain name, rather than an IP address.

To use DDNS:

1. Register for the DDNS service with a supported DDNS service provider. You can then apply for, and be allocated, a Domain Name.
2. Enter and save the correct DDNS settings on the ***DDNS*** screen of the Network Camera.

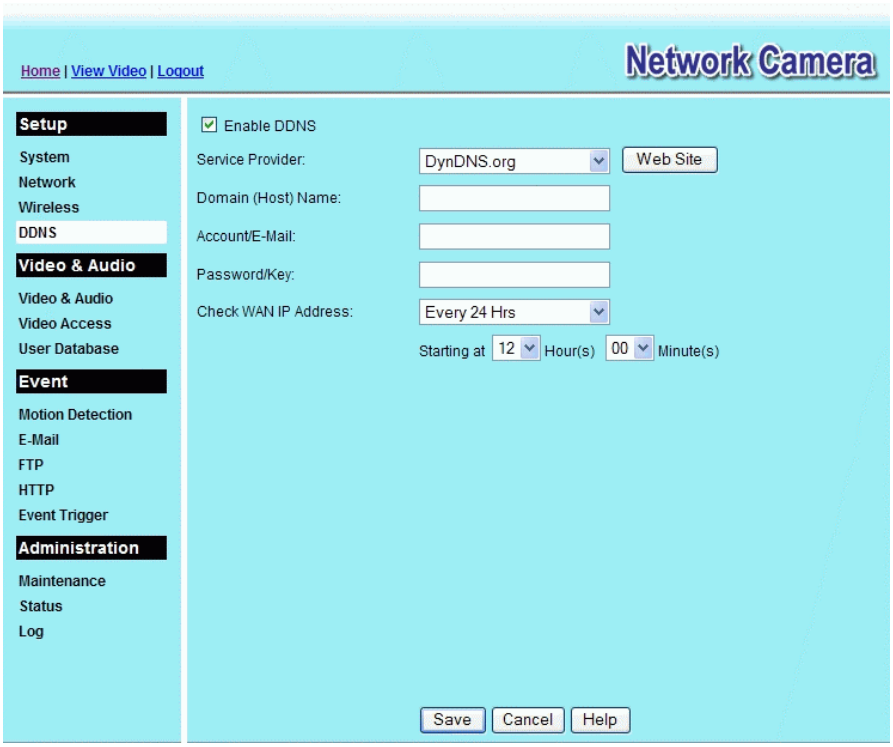


Figure 20: DDNS Screen

3. Operation is then automatic:
   - The Network Camera will automatically contact the DDNS server whenever it detects that the Internet IP address has changed, and inform the DDNS server of the new IP address.
   - Internet users can then connect to the camera using the Domain Name allocated by the DDNS service provider.

Viewing Live Video via the Internet

Clients (viewers) will also need a broadband connection; dial-up connections are NOT recommended.

Viewing Live Video Using your Web Browser

If using your Web browser, you need to know the Internet IP address (or the Domain name) of the camera's Router/Gateway, and the correct port number.

Enter the Internet address of the Router/Gateway, and its port number, in the *Address* (or *Location*) field of your Browser.

Example - IP address:

```
HTTP://203.70.212.52:1024
```

Where the Router/Gateway's Internet IP address is `203.70.212.52` and the "Secondary Port" number on the Network Camera is `1024`.

Example - Domain Name:

```
HTTP://mycamera.dyndns.tv:1024
```

Where the Router/Gateway's Domain name is `mycamera.dyndns.tv` and the "Secondary Port" number on the Network Camera is `1024`.

Viewing Live Video with the Viewing/Recording Utility

If using the Windows Viewing/Recording Utility, the details of the Network Camera must be entered on the *Camera Setup* screen.

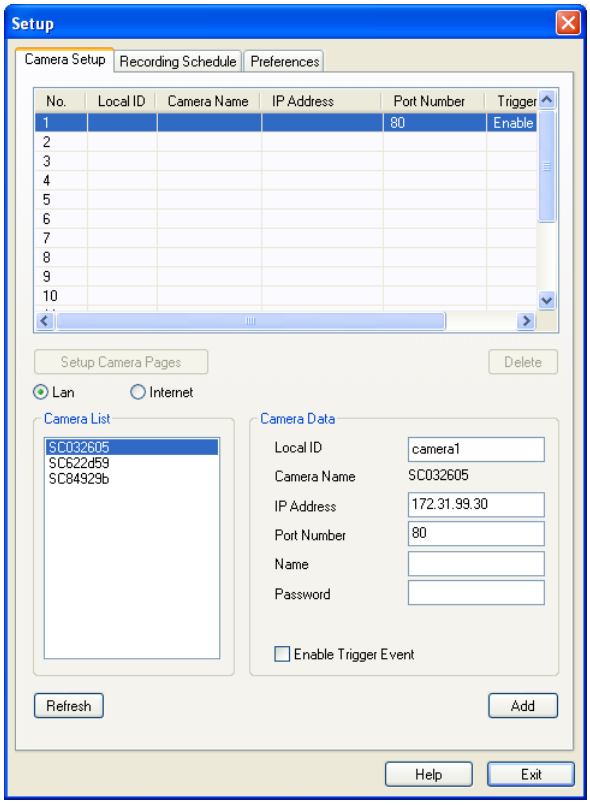


Figure 21: Add Camera from Internet

See ***Chapter 6 - Windows Monitor/Playback/IP Recorder Utility*** for full details on using the Windows Viewing/Recording utility.

Motion Detection Alerts

The *Motion Detection* feature can generate an Alert when motion is detected.

The Network Camera will compare consecutive frames to detect changes caused by the movement of large objects.

But the motion detector can also be triggered by:

- Sudden changes in the level of available light
- Movement of the camera itself.

Try to avoid these situations. The motion detection feature works best in locations where there is good steady illumination, and the camera is mounted securely. It cannot be used outdoors due to the sensitivity of the CMOS sensor.

To Use Motion Detection Alerts

Using the Web-based interface on the Network Camera, select the *Motion Detection* screen, then configure this screen as described below.

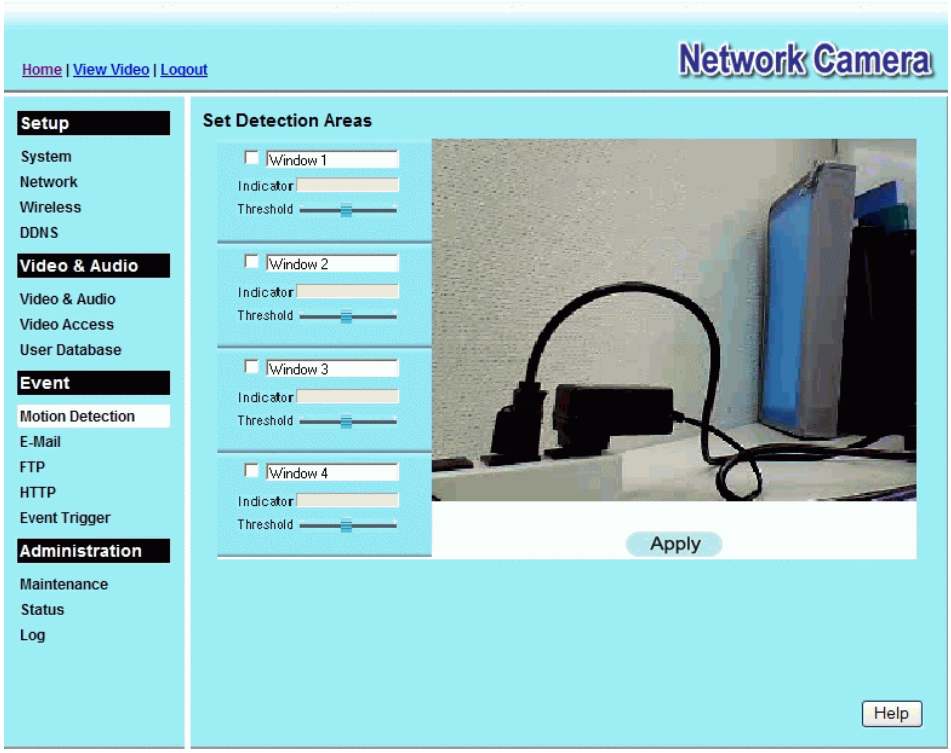


Figure 22: Motion Detection

1. Enable the *Motion Detection* feature.
2. Set the area or areas of the video image to be examined for movement. You can define up to 4 areas, and set the motion threshold individually for each area.
3. If using a schedule, define the desired schedule in *Event Trigger* screen.
4. Save your changes.
5. Select the *E-Mail* screen to have alerts sent by E-mail:
   - Enable and enter at least one (1) E-mail address
   - Select or enter the desired options for *Video Attachment*, *Show "From" as* and *Subject* fields.

- Enter details of the SMTP Server used to send the E-mail.

If the Motion Detection feature is enabled, but E Mail is not enabled, then the only action when motion is de ected is to log this event in the system log.

Chapter 5

Web-based Management

This Chapter provides Setup details of the Network Camera's Web-based Interface. This Chapter is for the Camera Administrator only.

Introduction

The Network Camera can be configured using your Web Browser. The Network Camera must have an IP address which is compatible with your PC.

The recommended method to ensure this is to use the supplied Windows-based Wizard, as described in ***Chapter 2 - Basic Setup***.

Connecting to Network Camera

- If using only your Web Browser, use the following procedure to establish a connection from your PC to the Network Camera:
- Once connected, you can add the Network Camera to your Browser's *Favorites* or *Bookmarks*.

Connecting using your Web Browser

1. Use the Windows utility to get the IP address of the Network Camera.
2. Start your WEB browser.
3. In the *Address* box, enter "HTTP://" and the IP Address of the Network Camera.
4. You will then be prompted for a username and password.
   - If using the default values, enter **`administrator`** for the name, and leave the password blank.
   - Otherwise, enter the *Administrator ID* and *Administrator Password* set on the ***Maintenance*** screen.

Welcome Screen

When you connect, the following screen will be displayed.

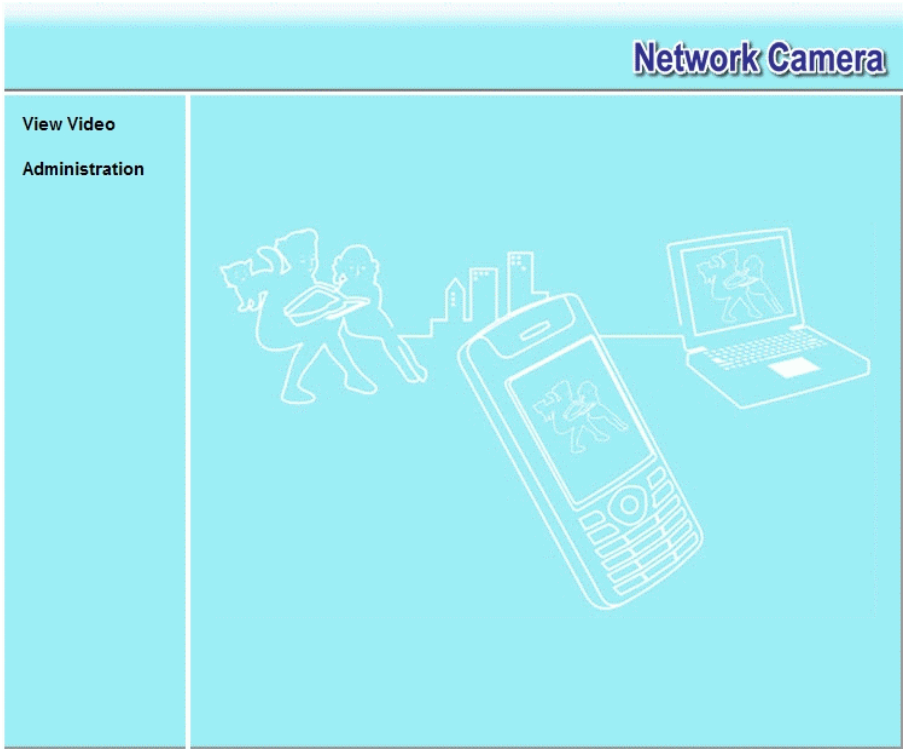


Figure 23: Welcome Screen

The menu options available from this screen are:

- **View Video** - View live Video using your Web Browser. See ***Chapter 3 - Viewing Live Video*** for details.
- **Administration** - Access the Administration menu.

Administration Menu

Clicking on ***Administration*** on the menu provides access to all the settings for the Network Camera.

The ***Administration*** menu contains the following options:

Setup

- **System**
- **Network**
- **Wireless** (Wireless IP Camera with MPEG4/MJPEG only)
- **DDNS**

Video & Audio

- **Video & Audio**
- **Video Access**
- **User Database**

Event

- **Motion Detection**
- **E-Mail**
- **FTP**
- **HTTP**
- **Event Trigger**

Administration

- **Maintenance**
- **Status**
- **Log**

System Screen

After clicking *Administration* on the main menu, or selecting *System* on the *Administration* menu, you will see a screen like the example below.

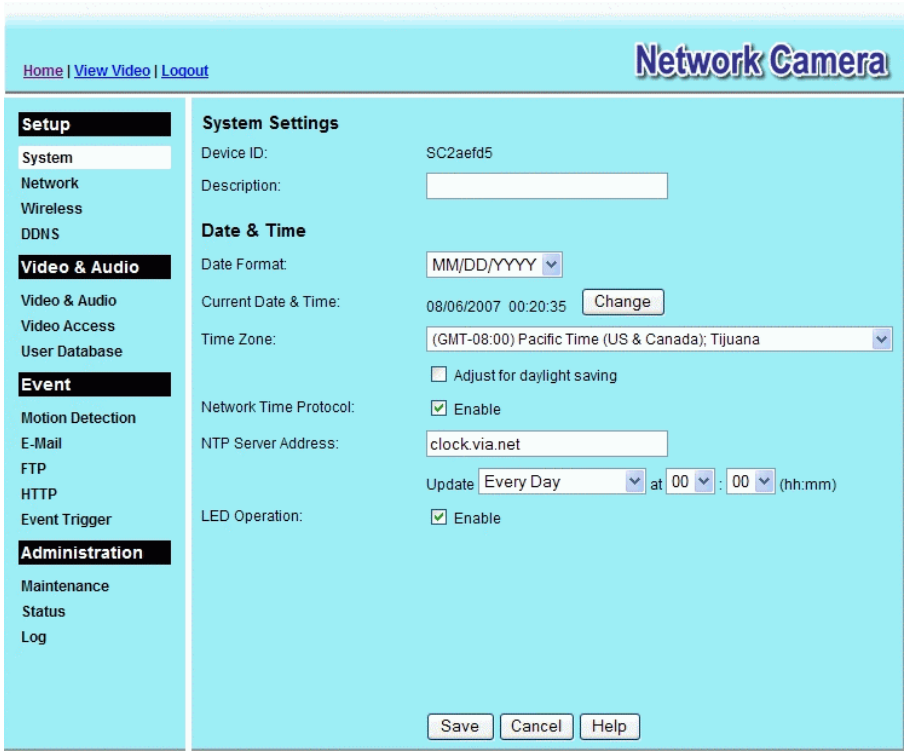


Figure 24: System Screen

Data - System Screen

System Settings	
Device ID	This displays the name for the Network Camera.
Description	This field is used for entering a description, such as the location of the Network Camera.
Date & Time	
Date Format	Select the desired date format, it will also be used to display the date and time as an overlay on the video image. The abbreviations used to predefine the date formats are list as follows: • YYYY-MM-DD = Year-Month-Day, e.g. 2006-01-31 • MM/DD/YYYY = Month/Day/Year, e.g. 01/31/2006 • DD/MM/YYYY = Day/Month/Year, e.g. 31/01/2006
Current Date & Time	This displays the current date and time on the camera. If it's not correct, click the **Change** button to modify the date/time settings. This button will open a sub-screen where you have 2 options: • Set the camera's date and time to match your PC. • Enter the correct date and time.

Time Zone	Choose the Time Zone for your location from the drop-down list. If your location is currently using Daylight Saving, enable the **Adjust for daylight saving** checkbox. **You must UNCHECK this checkbox when Daylight Saving finishes**.
Network Time Protocol	Enable or disable the Time Server feature as required. If Enabled, the Network Camera will contact a Network Time Server at regular intervals and update its internal timer.
NTP Server Address	Enter the address for the desired NTP server.
Update	The Schedule determines how often the Network Camera contacts the NTP Server. Select the desired options.
LED Operation	Enable this if you want to use this function.

Network Screen

This screen is displayed when the *Network* menu option is clicked.

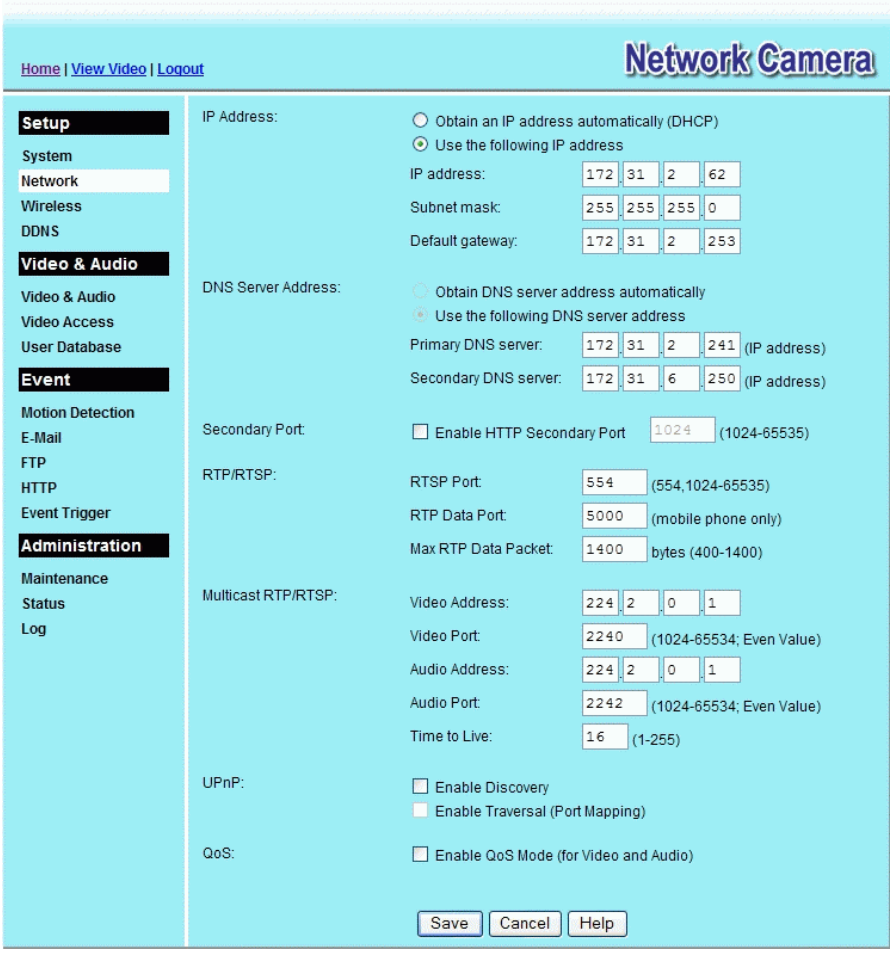


Figure 25: Network Screen

Data - Network Screen

Network	
Obtain an IP Address Automatically	If selected, the Network Camera will obtain its IP address and related information from a DHCP Server. Only select this option if your LAN has a DHCP Server.
Use the following IP Address	If selected, you must assign the following data to the Network Camera. • **IP Address** - Enter an unused IP address from the address range used on your LAN. • **Subnet Mask** - Use the same value as PCs on your LAN. • **Default Gateway** - Use the same value as PCs on your LAN.
Obtain DNS server address automatically	If selected, the Network Camera will use the DNS address or addresses provided by the DHPC server. This option is only available if the IP address setting is *Obtain an IP address Automatically*.

Use the following DNS server address	**Primary DNS server** - Use the same value as PCs on your LAN. Normally, your ISP will provide this address. **Secondary DNS server** - This is optional. If entered, this DNS will be used if the Primary DNS does not respond.
Secondary Port	This sets the port number for HTTP (Web) connections to the Camera, whether for administration or viewing video. If enabled, you can connect using either port 80 or the Secondary port. You must enter the Secondary port number (between 1024 to 65535) in the field provided. Note that when using a port number which is not 80, you must specify the port number in the URL. For example, if the Camera's IP address was 192.168.1.100 and the Secondary port was 1024, you would specify the URL for the Camera as follows: http://192.168.1.100:1024
RTP/RTSP	The RTSP (Real Time Streaming Protocol), a standard for connected client(s) to control streaming data (MPEG-4) over the World Wide Web. Enter the RTSP Port number (between 1024 and 65535) in the field provided. The default RTSP Port is 554. The RTP (Real Time Transport Protocol), an Internet protocol for transmitting real-time data such as audio and video. Max RTP Data Packet field will let users limit the size of the file. Enter the desired value between 400 and 1400.
Multicast RTP/RTSP	
Video Address	Enter the address of video.
Video Port	Enter the desired value (between 1024 to 65534) in the field provided. The number you entered must be even values.
Audio Address	Enter the address of the audio.
Audio Port	Enter the desired value (between 1024 to 65534) in the field provided. The number you entered must be even values.
Time to Live	Enter the desired length of time, if the packets fail to be delivered to their destination within. The Time to Live you entered must be in-between 1 to 255.
UPnP	
Enable Discovery	If enabled, the Network Camera will broadcast its availability through UPnP. UPnP compatible systems such as Windows XP will then be able to detect the presence of the Network Camera.
Enable Traversal	If enabled, HTTP connections (from your Web Browser or the Viewer and Recorder utility) can use secondary port instead of port 80 (the standard HTTP port) to access the camera.
QoS	
Enable QoS Mode	If enabled, the throughput level (for Video and Audio) is guaranteed through QoS (Quality of Service).

Wireless Screen (Wireless IP Camera with MPEG4/MJPEG only)

This screen is displayed when the *Wireless* menu option is clicked.

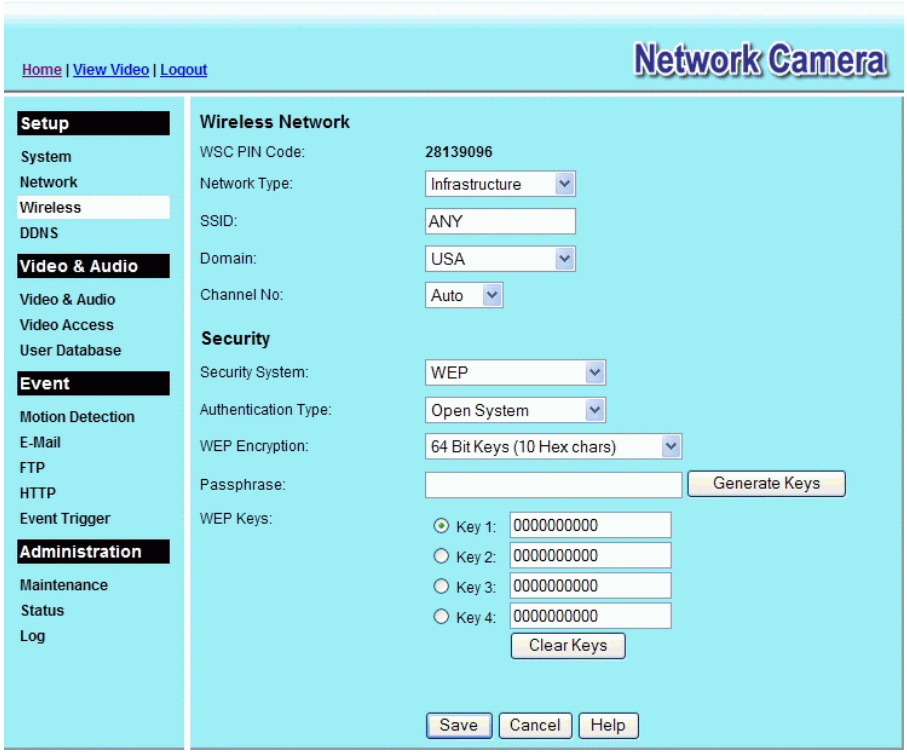


Figure 26: Wireless Screen

Data - Wireless Screen

Wireless Network	
Network Type	This determines the type of wireless communication used by the Network Camera. • If you have an Access Point, select *Infrastructure*. • Otherwise, select *Ad-hoc*.
SSID	This must match the value used by other devices on your wireless LAN. **Note! The SSID is case sensitive.**
Domain	Select your region from the drop-down list.
Channel No.	• In *Infrastructure* mode, this setting is ignored. The Network Camera will use the Channel set on the Access Point. • For *Ad-hoc* mode, select the Channel you wish to use on your Network Camera. Other Wireless stations should use the same setting. • If you experience interference (shown by lost connections and/or slow data transfers) you may need to experiment with different channels to see which one is the best.

Security	
Security System	Select the desired option, and then enter the settings for the selected method: • **Disabled** - No security is used. Anyone using the correct SSID can connect to your network. • **WEP** - The 802.11b standard. Data is encrypted before transmission, but the encryption system is not very strong. • **WPA/WPA2 Personal** - Like WEP, data is encrypted before transmission. WPA is more secure than WEP, and should be used if possible. WPA Personal is the version of WPA which does NOT require a Radius Server on your LAN.
WEP	
Authentication Type	Normally this can be left at the default value of "Automatic." If that fails, select the appropriate value - "Open System" or "Shared Key." Check your wireless card's documentation to see what method to use. **Note:** In *Infrastructure* mode, either setting will normally work, since most Access Points can use both methods.
WEP Encryption	Select the WEP Encryption level: • 64 Bit Keys (10 Hex chars) • 128 Bit Keys (26 Hex chars) • 64 Bit Keys (5 ASCII chars) • 128 Bit Keys (13 ASCII chars)
Passphrase	Enter a word or group of printable characters in the Passphrase box and click the "Generate Key" button to automatically configure the WEP Key(s). If encryption strength is set to 64-bit, then each of the four key fields will be populated with key values. If encryption strength is set to 128-bit, then only the selected WEP key field will be given a key value.
WEP Keys	• Use the radio buttons to select the default key. • Enter the key value you wish to use. Other stations must have the same key values. • Keys must be entered in Hex. Hex characters are the digits (0 ~ 9) and the letters A ~ F. • Click *Clear Keys* to set the Keys to be blank.
WPA/WPA2 Personal	
Shared Key	Enter the key value. Data is encrypted using a key derived from the network key. Other Wireless Stations must use the same network key. The PSK must be from 8 to 63 characters in length.

DDNS Screen

Many internet connections use a "Dynamic IP address", where the Internet IP address is allocated whenever the Internet connection is established.

This means that other Internet users don't know the IP address, so can't establish a connection.

DDNS is designed to solve this problem, as follows:

- You must register for the DDNS service with a DDNS service provider. The DDNS Service provider will allocate a Domain Name to you upon request.
- The DDNS settings on the ***DDNS*** screen above must be correct.
- The Network Camera will then contact the DDNS server whenever it detects that the Internet IP address has changed, and inform the DDNS server of the new IP address. (The *Check WAN IP Address* determines how often the Network Camera checks if the Internet IP address has changed.)

This system allows other internet users to connect to you using the Domain Name allocated by the DDNS service provider.

This screen is displayed when the *DDNS* menu option is clicked.

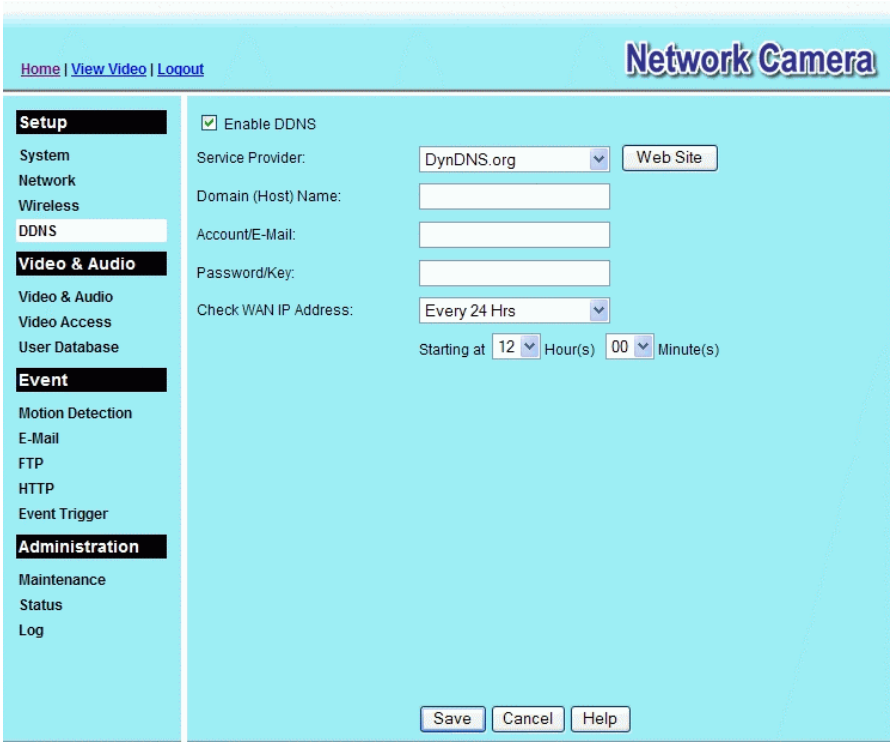


Figure 27: DDNS Screen

Data - DDNS Screen

DDNS	
Enable DDNS	Enable or disable the DDNS function, as required. Only enable this feature if you have registered for the DDNS Service with a DDNS Server provider.
Service Provider	Choose a service provider from the list.

Web Site Button	Click this button to open a new window and connect to the Web site for the selected DDNS service provider.
Domain (Host) Name	Enter the Domain Name (Host Name) allocated to you by the DDNS Server provider.
Account/E-Mail	Enter the login name for the DDNS account.
Password/Key	Enter the password for the DDNS account.
Check WAN IP Address	Set the schedule for checking if the Internet IP address has changed. If the IP address has changed, the DDNS Server will be notified. NOTE: If the DDNS Service provided some software to perform this IP address update or notification, you should NOT use this software. The update is performed by the camera.

Video & Audio Screen

This screen is displayed when the *Video & Audio* option is clicked.

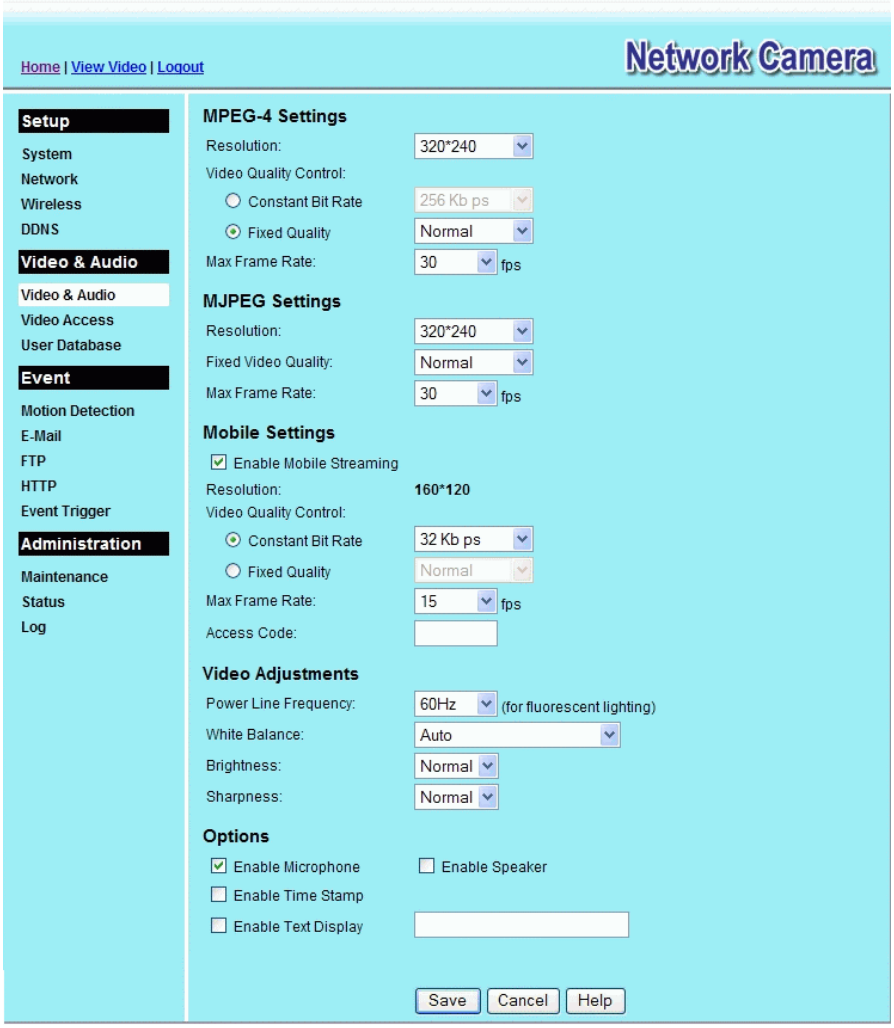


Figure 28: Video & Audio Screen

Data - Video & Audion Screen

MPEG-4 Settings	
Resolution	Select the desired video resolution format. The default resolution is set to 320*240.
Video Quality Control	• Constant Bit Rate: Select the desired bit rate. The default is set to 1.2 Mbps. • Fixed Quality: Select the desired option. The default fix quality is set to Normal.

Max. Frame Rate	Select the desired Maximum bandwidth for the video stream. Note that you can specify EITHER the Bandwidth OR the Frame Rate, not both. If the Bandwidth is defined, the frame rate will be adjusted as necessary to achieve the specified frame rate. The default value for bandwidth is **Unlimited**, which allows you to specify the desired frame rate.
MJPEG Settings	
Resolution	Select the desired video resolution format. The default resolution is set to 320*240.
Fixed Video Quality	Select the desired fix quality. The default fix quality is set to Normal.
Max. Frame Rate	Select the desired Maximum bandwidth for the video stream. Note that you can specify EITHER the Bandwidth OR the Frame Rate, not both. If the Bandwidth is defined, the frame rate will be adjusted as necessary to achieve the specified frame rate. The default values for bandwidth is **Unlimited**, which allows you to specify the desired frame rate.
Mobil Settings	
Enable Mobil Streaming	Enable streaming video for the mobile device by checking this checkbox.
Resolution	The default resolution is set to 160x120.
Video Quality Control	• Constant Bit Rate: Select the desired fix bit rate. • Fixed Quality: Select the desired option. The default fix quality is set to Normal.
Max. Frame Rate	Select the desired Maximum bandwidth for the video stream.
Access Code	Enter the code for accessing the live video from camera through cell phone connection.
Video Adjustments	
Power Line Frequency	Select the power line frequency (50Hz or 60Hz) used in your region, to improve the picture quality under florescent lighting.
White Balance	Select the desired option to match the current environment and lighting.
Brightness	If necessary, you can adjust the brightness to obtain a better image. For example, if the camera is facing a bright light, the image may be too dark. In this case, you can increase the brightness.
Sharpness	Select the desired option for the sharpness. You can select a Sharpness value between -3 and 3.
Options	
Microphone	Enable audio by checking this checkbox. Using Audio will increase the bandwidth requirements slightly.
Speaker	Enable speaker sound by checking this checkbox.
Time Stamp	If enabled, the current time will be displayed on the Video image.

Text Display	Enable this setting if you want text to be displayed on the Video image, and enter the desired text - up to 20 characters. This feature is often used to identify each camera when multiple cameras are installed.

Video Access Screen

This screen is displayed when the *Video Access* option on the *Video & Audio* menu is clicked.

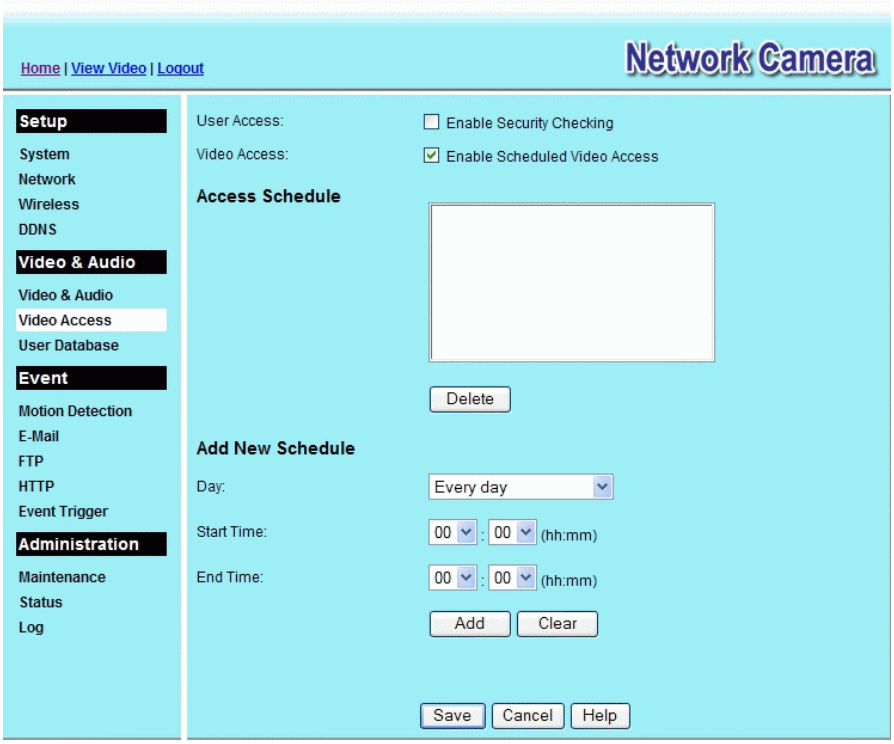


Figure 29: Video Access Screen

Data - Video Access Screen

User Access	
Enable Security Checking	• If disabled - No login required, users do not have to provide a username and password when they connect to the camera to view video. • If enabled - Require login, users will be prompted for a username and password when they connect to the camera to view video. The camera administrator must use the "User Database" menu option to create the desired users.
Video Access	
Enable Scheduled Video Access	• If enabled - Camera is available during the scheduled periods, and unavailable at other times. If this option is selected, you need to define a schedule. If no schedule is defined, this option is always disabled. • If disabled – The option will remain disabled until you enable it. Note that regardless of which setting is chosen, the Administrator can ALWAYS access the camera and view live video.
Access Schedule	
Scheduled Periods	This displays all periods you have entered into the database. If you have not entered any periods, this list will be empty.

Delete	Use the Delete button to delete the selected item in the list.
Add Period	
Day	Choose the desired option for the period.
Start Time	Enter the start time using a 24 hr clock.
End Time	Enter the end time using a 24 hr clock.
Add	Click this button to add a new period.

User Database Screen

This screen is displayed when the *User Database* option on the *Video & Audio* menu is clicked.

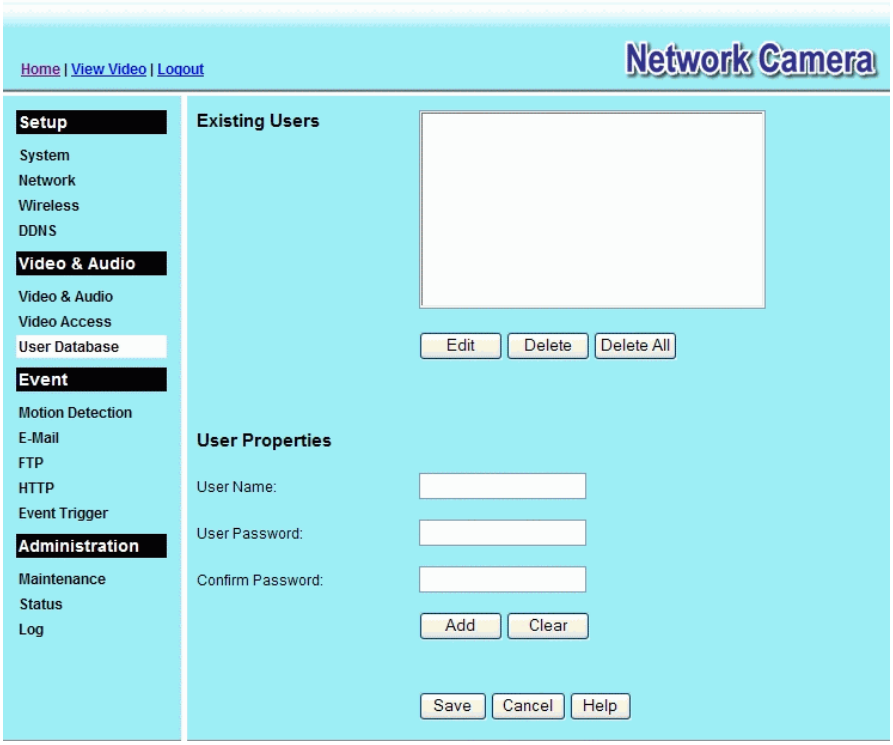


Figure 30: User Database Screen

Data - User Database Screen

Existing Users	
User List	This displays all users you have entered into the User database. If you have not entered any users, this list will be empty.
Edit, Delete, Delete All	Use these buttons to manage the user database.
User Properties	
User Name	Enter the name for the user here. • Spaces, punctuation, and special characters must NOT be used in the name. • The name is case insensitive (case is ignored), so you can not have 2 names which differ only by case.
User Password	The password for this user.
Confirm Password	Re-enter the password for the user, to ensure it is correct.
Add Button	Click this button to add a new user, using the data shown on screen.
Clear Button	Use this button to clear the input fields, ready to add a new user.

Motion Detection Screen

This screen is displayed when the *Motion Detection* option on the *Event* menu is clicked.

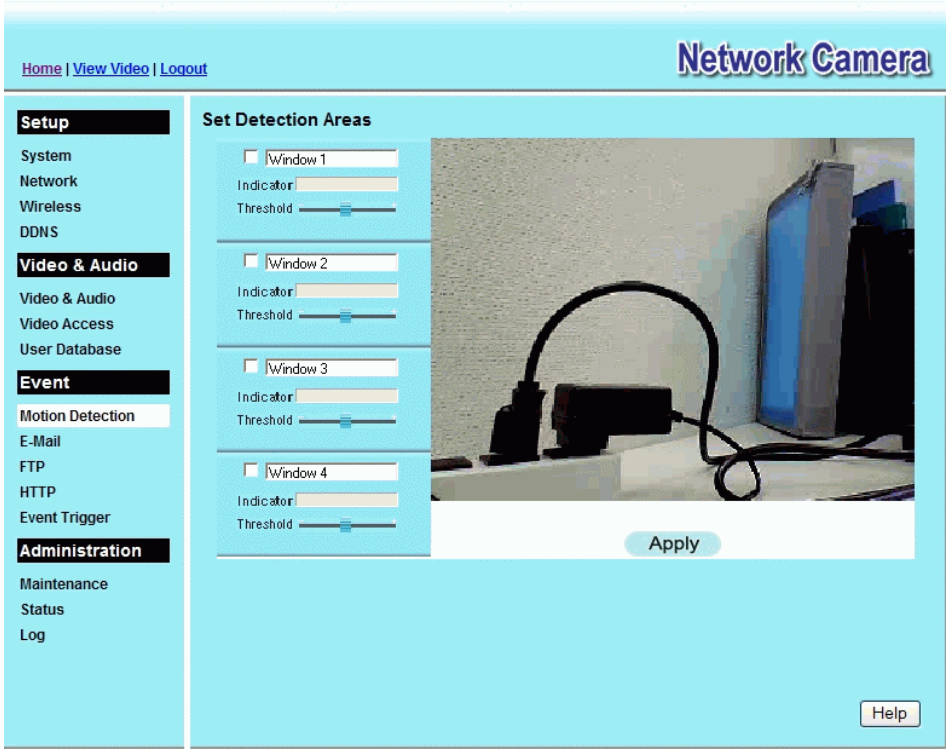


Figure 31: Motion Detection Screen

Data - Motion Detection Screen

Motion Detection	
Set Detection Areas	You can set the full screen or areas of the video image to be examined. Note: Motion detection can be triggered by rapid changes in lighting condition, as well as by moving objects. For this reason, it should only be used indoors.
Threshold	Adjust the threshold of detection for each area.

E-Mail Screen

This screen is displayed when the *E-Mail* option on the *Event* menu is clicked.

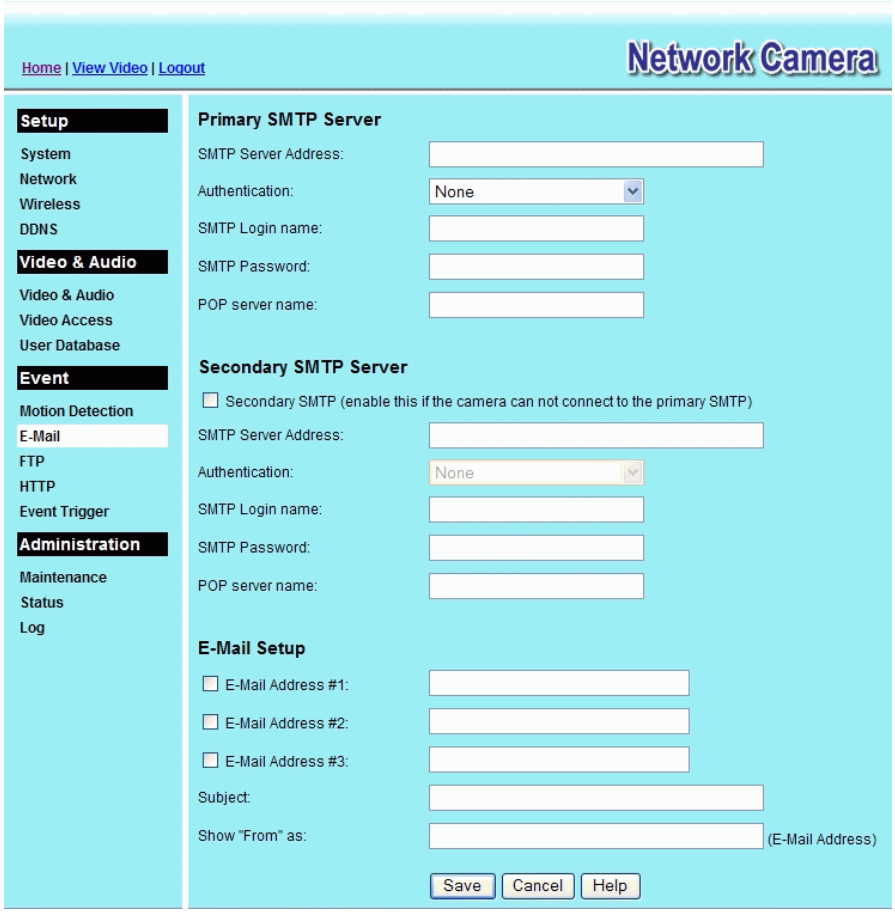


Figure 32: E-Mail Screen

Data - E-Mail Screen

Primary/Secondary SMTP Server	
SMTP Server Address	Enter the address of the SMTP (Simple Mail Transport Protocol) Server to be used to send E-Mail.
Authentication	Select the desired Authentication type for the SMTP Server.
SMTP Login name	Enter your login name for the SMTP Server.
SMTP Password	Enter your password for the SMTP Server.
POP server name	Enter the name for the POP Server.
Secondary SMTP	Check the box to upload to the Secondary SMTP if the camera can not connect to the primary SMTP.
E-Mail Setup	
E-mail Address	Enter at least one (1) E-Mail address; the 2nd and 3rd addresses are optional. The E-Mail alert will be sent to the E-Mail address or addresses specified here.

Subject	Enter the desired text to be shown as the "Subject" for the E-Mail when it is received. Subject can not exceed 48 alphanumeric characters.
Show "From" as	Enter the E-Mail address to be shown in the "From" field when the E-Mail is received.

FTP Screen

This screen is displayed when the *FTP* option on the *Event* menu is clicked.

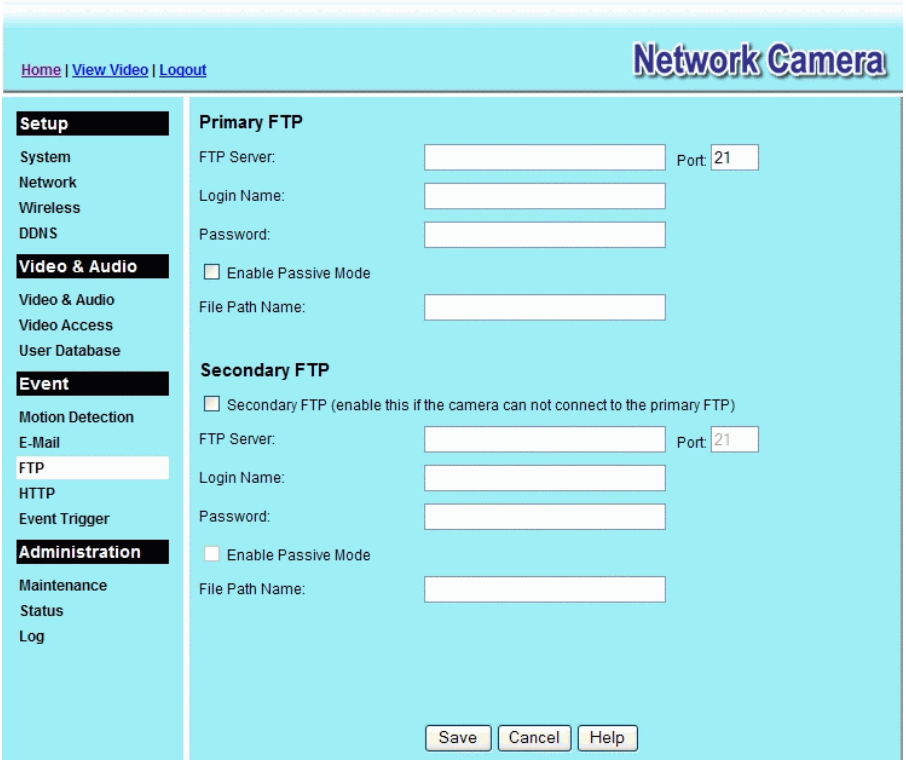


Figure 33: FTP Screen

Data - FTP Screen

Primary/Secondary FTP	
FTP Server	Enter the address of the FTP Server.
Port	Enter the Port of the FTP Server to be connected.
Login name	Enter your login name for the FTP Server.
Password	Enter your password for the FTP Server.
Enable Passive Mode	Check the box to enable the Passive mode feature of the FTP.
File Path Name	Enter the file path/name of the FTP.
Secondary FTP	Check the box to upload to the Secondary FTP if the camera can not connect to the primary FTP.

HTTP Screen

This screen is displayed when the *HTTP* option on the *Event* menu is clicked.

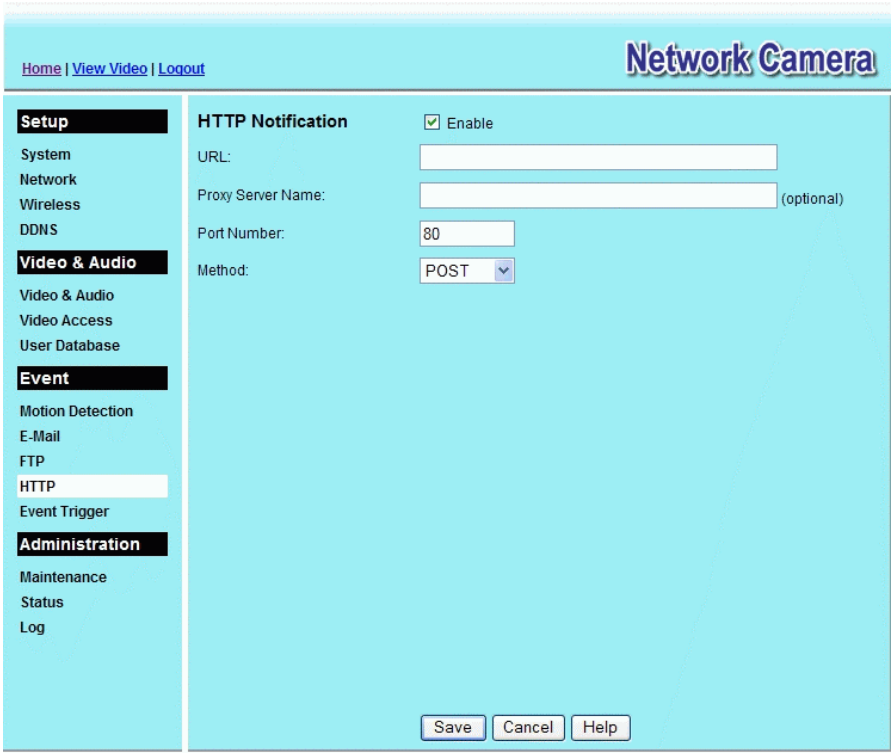


Figure 34: HTTP Screen

Data - HTTP Screen

HTTP Notification	
Enable	Enable this checkbox to use the HTTP Notification.
URL	Enter the URL of your HTTP notification server.
Proxy Server Name	Specify the proxy server name in the provided field if the camera needs to pass through a Proxy Server to do the HTTP notification.
Port Number	Enter the port number for the proxy server.
Method	Select the desired method of form data encoding. • Get - It should be used if and only if the form processing is independent, which typically means a pure query form. Generally it is advisable to do so. • Post - If there are problems related to long URLs and non-ASCII character repertoires, which can make it necessary to use "POST" even for independent processing.

Event Trigger Screen

This screen is displayed when the *Event Trigger* option on the *Event* menu is clicked.

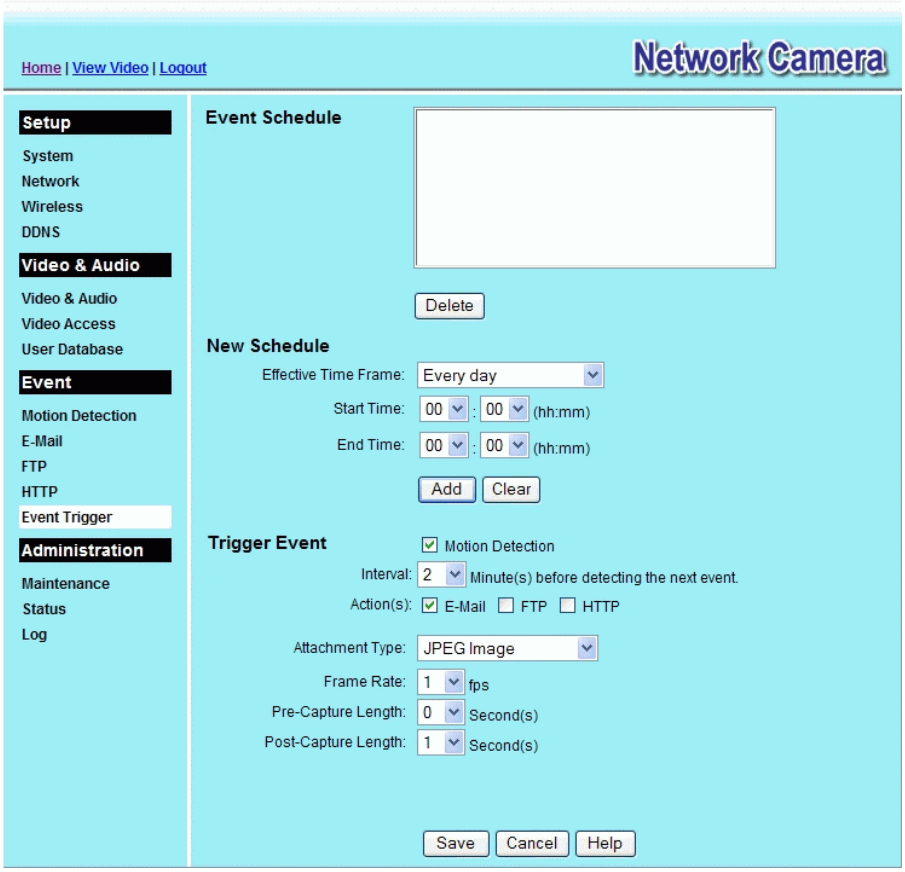


Figure 35: Event Trigger Screen

Data - Event Trigger Screen

Event Schedule	
Schedule List	The Event Schedule shows all of the event types currently configured in the Network Camera, along with various information about their configuration, as listed below: • Name - the descriptive event name set by the user. • Effective Time Frame - shows when the event at a set time will be triggered. • Trigger by - shows what kind trigger activate the event. • Action - shows what kind of the actions will be issued when the event been triggered
New Schedule	
Effective Time Frame	Choose the desired option for the period.
Start Time	Choose the desired start time using a 24 hr clock.
End Time	Choose the desired end time using a 24 hr clock.

Trigger Event	
Motion Detection	If enabled, movement in a motion detection window can be used to trigger events.
Interval	Select the desired option for the events interval. (* "0" = No Delay)
Actions	• E-Mail - If checked, an E-Mail (with "Attachment") will be delivered to the SMTP server. (SMTP Server must be configured on the E-Mail page.) • FTP - If checked, an FTP upload will be activated to the FTP server. (FTP servers must be configured on the FTP page.) • HTTP - If checked, an Instant Messaging (IM) will be delivered to the Jabber server. (Jabber server must be configured on the Instant Messaging page.)
Attachment Type	• **JPEG Image:** Frame Rate - Select the desired capture rate for the JPEG image(s) here. Pre/Post Capture - Select the desired length. The snapshot(s) of the JPEG image depends on this setting, and also the file size and degree of compression. • **Video:** Video Format - Select the desired type for the video file. Pre/Post Capture - Select the desired length. The size of the file depends on this setting, and also the Video size and degree of compression.

Maintenance Screen

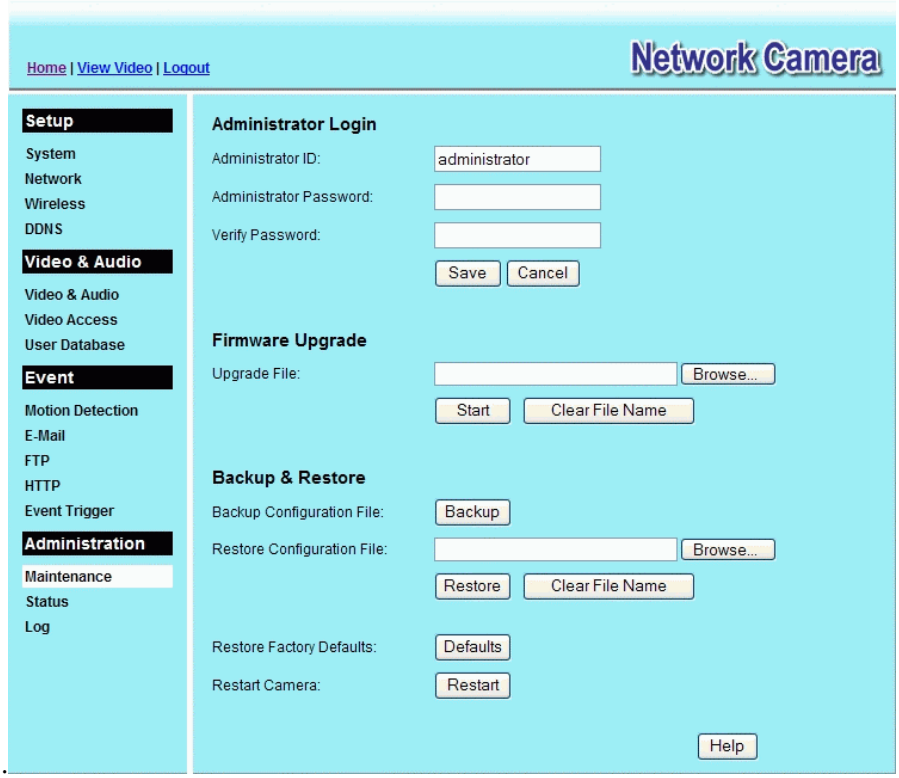


Figure 36: Maintenance Screen

Data - Maintenance Screen

Administrator Login	
Administrator ID	Enter the name for the Administrator here. Spaces, punctuation, and special characters must NOT be used in the name.
Administrator Password	The password for the Administrator.
Verify Password	Re-enter the password for the Administrator, to ensure it is correct.
Firmware Upgrade	
Upgrade File	Click the "Browse" button and browse to the location on your PC where you stored the Firmware file. Select this file.
Start	Click this button to start the Firmware. When the upgrade is finished, the Network Camera will restart, and this management connection will be unavailable during the restart.
Clear File Name	This does NOT stop the Upgrade process if it has started. It only clears the input for the "Upgrade File" field.

Backup & Restore	
Backup Configuration File	Click *Backup* button to save the current configuration information to a text file.
Restore Configuration File	Click *Restore* button to reinitialize the camera to load the new updated software. Do this after loading the upgrade file.
Clear File Name	This does NOT stop the Restore process if it has started. It only clears the input for the "Restore Configuration File" field.
Restore Factory Defaults	Click *Defaults* button to reloads all default settings on the camera.
Restart Camera	Click *Restart* button to restarts the camera.

Status Screen

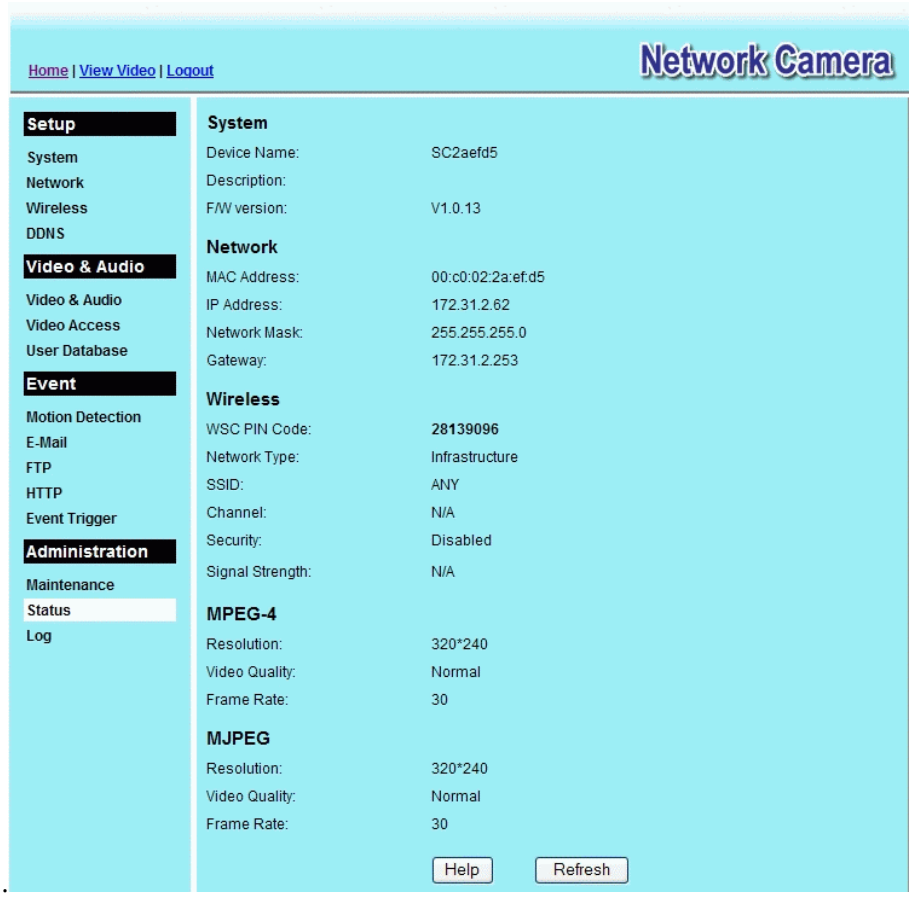


Figure 37: Status Screen

Data - Status Screen

System	
Device Name	This shows the name of the Network Camera.
Description	This shows the description of the Network Camera, such as location.
F/W version	The version of the current firmware installed.
Network	
MAC Address	The current IP address of the Network Camera.
IP Address	The IP Address of the Network Camera.
Network Mask	The network mask associated with the IP address above.
Gateway	The IP Address of the remote Gateway associated with the IP Address above.
Wireless	
WSC PIN Dode	It displays the current WSC PIN code.

Network Type	This shows the Network Type currently in use (Ad-hoc or Infrastructure).
SSID	This displays the wireless SSID.
Channel	This shows the wireless channel currently used.
Security	The current security setting for Wireless connections.
Signal Strength	This shows the strength of the signal.
MPEG-4/MJPEG	
Resolution	The image size of the video stream.
Video Quality	This displays the image quality of the video stream.
Frame Rate	This displays the frame rate of the video stream.
Buttons	
Refresh	Update the log and any other data on screen.

Log Screen

This screen displays a log of system activity.

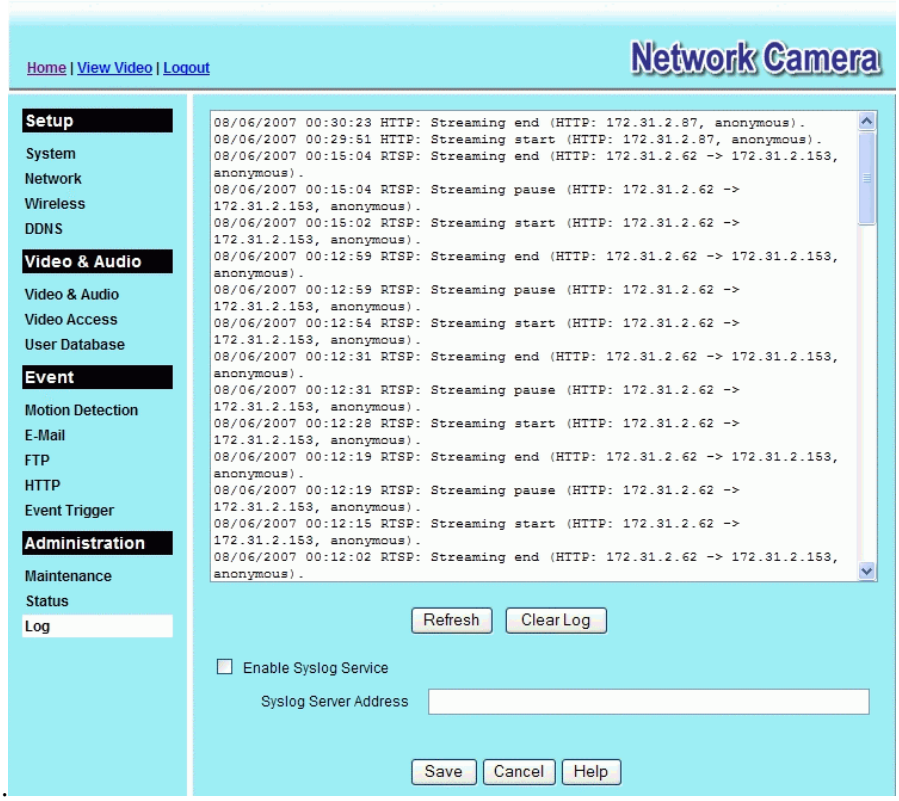


Figure 38: Log Screen

Data - Log Screen

Log	
System Log	This is a log of system activity.
Enable Syslog Service	Check the box to enable the System Log Server feature.
Syslog Server Address	Enter the address of the Syslog Server.
Refresh Button	Click this to update the data shown on screen.
Clear Log	Click this button to restart the log.

Chapter 6

Windows Monitor/Playback/IP Recorder Utility

This Chapter describes how to view and record the live video stream generated by the Network Camera, using the supplied Windows utility.

Overview

The recommended method to view video is to use the supplied Windows Viewing/Recording utility. This utility also allows you to record the video streams, either interactively or using a schedule.

Installation

1. Insert the supplied CD-ROM into your drive. If the setup program does not start automatically, run **NeutralCamera.exe** in the root folder. You will see the *Welcome* screen shown below.

Figure 39: Welcome Screen

2. Click the *Install Utility* button to start the installation of the Monitor/Playback/IP Recorder Utility.
3. Follow the prompts to complete the installation.

System Tray Icon

When started, the program will create an icon in the Windows system tray on the taskbar, as shown below.

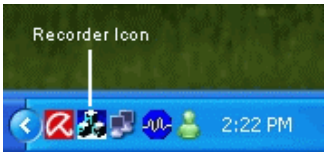


Figure 40: System Tray Icon

You can right click the icon and it will provides a menu which allows you to view program details, view the main screen, or terminate the program.

Main Screen

When started, a screen like the example below will be displayed.

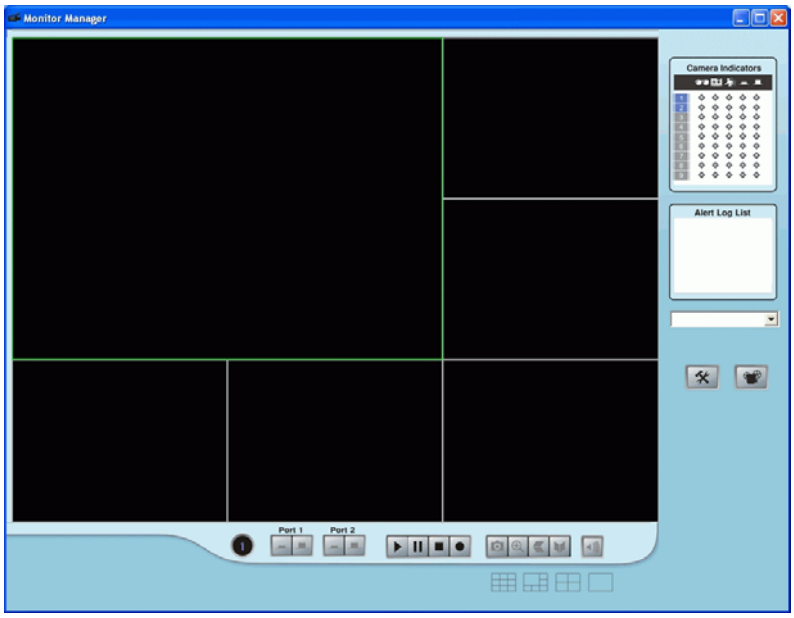


Figure 41: Main Screen

If no cameras have been defined, no video will be displayed. See the following section for information on defining a camera. Note that each Camera is given a number (Channel Number).

Camera Setup

To define a camera and associate it with a *Channel Number*.

1. Click the *Setup* button on the main screen. You will see a screen like the example below.

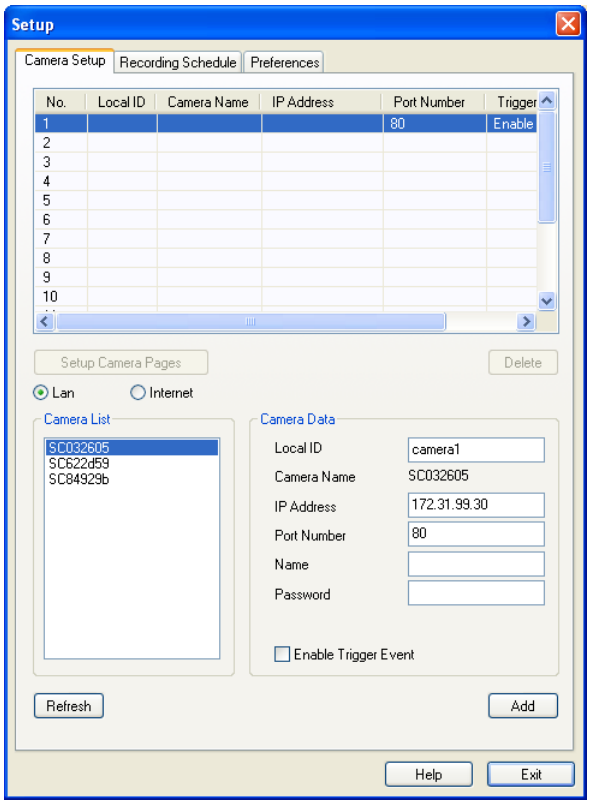


Figure 42: Camera Setup Screen

2. Select the desired *Channel* number in the left (*No.*) column.
3. There are 2 radio buttons, for *LAN* or *Internet*. The default is *LAN*. See the following section for details of the *Internet* option.
   - The *LAN* panel, on the left, displays all Network Camera found on your LAN. This list can be updated by clicking the *Refresh* button.
   - The *Camera Data* panel, on the right, displays the data for the selected camera.
4. To associate a camera with the current *Channel*:
   - Select a camera in the list on the left.
   - Enter the value of *Local ID*.
   - Check that the *Camera Data* shown on the right is correct. See below for details.
   - Click the *Add* button. The camera will now appear in the *Channel List*.

Camera Data - LAN

Local ID	This is the name you gave to this camera. This field must be entered.
Camera Name	This is the default name for the Network Camera, and cannot be changed.
IP Address	The current IP address of the Network Camera.

Port Number	This will normally display "80". Only change this if requested to do so by the Network Camera Administrator.
Login	The camera Administrator can require that users provide a username and password before being allowed to view the live video. • If the Administrator has not enabled this option, the *Login* fields can be left blank. • Otherwise, you must enter the username and password allocated to your by Administrator.
Setup Camera Pages	Click this button to connect the Web-based interface of the Camera
Enable Trigger Event	Check this if you want the Camera to have the feature enabled.

You can add the same Camera twice, once for the LAN (using the LAN IP address), and again for the Internet (using the Internet IP address). This will allow viewing the camera whether you are on the same LAN as the camera or in a remote location.

Adding Cameras on the Internet

If the Network Camera you wish to add is not on your LAN, but is available via the Internet, click the *Internet* button. You will see a screen like the example below.

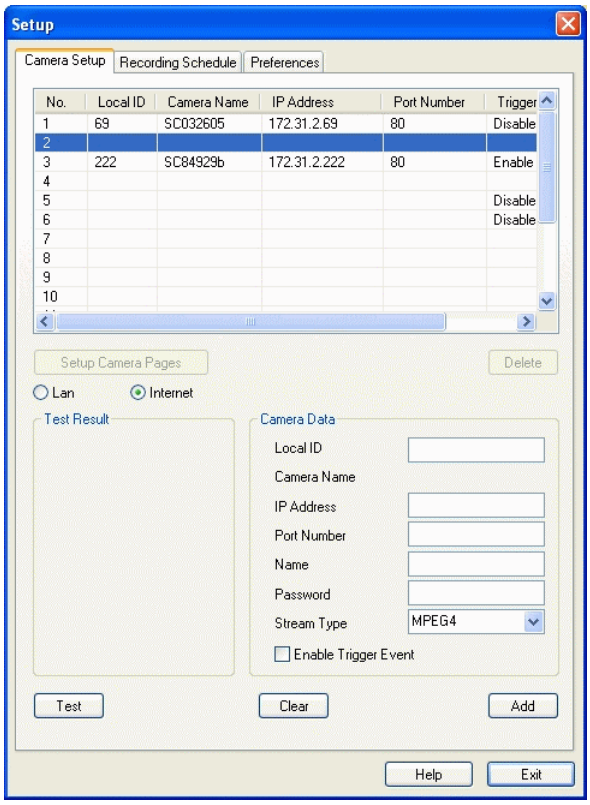


Figure 43: Add Camera from Internet

To associate a camera with the current *Channel*:

1. Enter the *Camera Data* on the panel on the right. See below for details.
2. If desired, click the *Test* button to check that a connection and login can be performed successfully. Note that if the remote LAN does not currently have an Internet connection, or the remote camera is not on-line, the test will fail because no connection is possible.
3. Click the *Add* button. The camera will now appear in the *Channel List*.

Camera Data - Internet

Local ID	This is the name you gave to this camera. This field must be entered.
Camera Name	This is the default name for the Network Camera, and cannot be changed. This field will be displayed automatically once a connection to the Network Camera has been established.
IP Address	Enter the Domain Name or Internet IP address of the desired Network Camera.
Port Number	Enter the port number used by the Network Camera for connections via the Internet The Camera Administrator can advise you of the port to use. The default value is 1024.

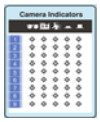
Login	The camera Administrator can require that users provide a username and password before being allowed to view the live video. • If the Camera Administrator has not enabled this option, the *Login* fields can be left blank. • Otherwise, you must enter the username and password allocated to you by the Camera Administrator.
Stream Type	Select the desired video stream type. There might be either MPEG4 or Motion-JPG streaming type.
Setup Camera Pages	Click this button to connect the Web-based interface of the Camera
Enable Trigger Event	Check this if you want the Camera to have the feature enabled.

You can add the same Camera twice, once for the LAN, and again for the Internet. This will allow viewing the camera whether you are on the same LAN as the camera or in a remote location.

Main Screen

You can view live video in the main screen. The built-in software can let you view up to 16 cameras on a single computer screen at one central location.

The Icons allow you to control the cameras and video streams.



Channel (Camera) Selection.
Use this to select the desired Channel (Camera) by clicking on the top row. This panel also indicates the status of the camera.

- The first column indicates if the camera is available.
  Green indicates the camera is available.
  Gray indicates that the camera is currently unavailable.
- The second column indicates if a recording is in progress.
  Gray indicates no recording.
  Red indicates recording is in progress.
- The third column indicates if Motion Detection is in progress.
  Gray indicates this feature is not enabled.
  Yellow indicates Motion Detection is in progress.
- The forth and fifth columns indicate if I/O port 1/2 is in On or Off mode.
  Gray indicates this feature is not enabled.
  Yellow indicates I/O port is in On mode.

Alert Log List.
It displays the list of alert logs, if any.

Setup. Click this button to open the Setup Window.

Playback. Click this button to open the Playback, which allows you to browse through the previously saved files.

Channel Indicator. This indicates the current channel (camera).

Screen Layout. Use this to select the number of Channels (Cameras) to be displayed on screen. Up to 9 cameras can be displayed.

Play. Use this to re-start viewing, after using the *Stop* or *Pause* button.

Pause. Use this to temporarily stop the connection to the camera

Stop. This will terminate the connection to the camera, halting both the viewing and the recording (if in progress).

Record. Click this to start recording the current video stream.
While recording, this button will be blue. To stop recording, click the **Stop** button.

Snapshot. Click this to take a single JPEG "snapshot" image of the current video.

Zoom Camera. A digital zoom feature is available. To zoom in on a section of the window, click this icon. Then use your mouse to select the section you want to magnify. Click the icon again to disable the zoom feature.

Flip Video. Click this to have the image swapped top-to-bottom.

Mirror Video. Click this to have the image swapped left-to-right.

Direct Pan/Tilt. Use this to move the camera to the Pan/Tilt position directly.

Sound On/Off. One of these icons will be displayed.

This can be used to select the Audio stream which can be heard. (Only one audio stream can be selected at any time.) If the camera does not support audio, or if audio is disabled on the camera, this option is unavailable.

Microphone On/Off. - For Cameras that feature audio, click this to enable the microphone.

Recording Video

You can record Video while watching, or schedule recordings to occur when you are absent. Recordings are stored in a standard Microsoft ASF file format, and can be played using Microsoft Media Player.

Before doing any recording, you should review the recording settings to ensure they are suitable for your PC.

Recording Schedule

To set the Recording Preferences, click the ***Recording Schedule*** tab on the *Setup* screen. You will see a screen like the example below.

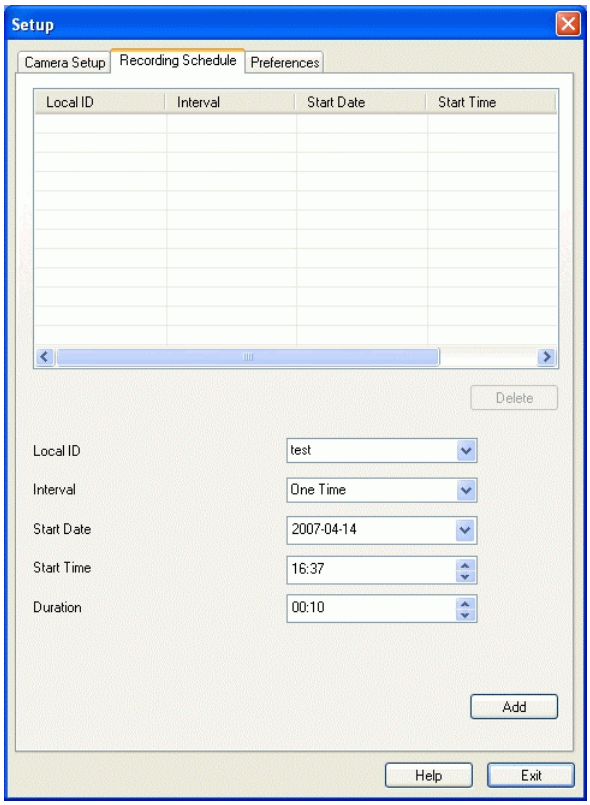


Figure 44: Recording Schedule

If necessary, change these settings to suit your environment.

Local ID. This is the name you gave to this camera. This field must be entered.

Interval. Decide which days you want the Camera to record. Select the appropriate Interval from the drop-down list.

Start Date. Select the date you want the recording begin.

Start Time. Select the time you want the recording begin.

Duration. Select how ling you want the recording to be.

After you have made your selections, click the **Add** button to save the new scheduled recording, and you will see it appears in the recording list.

Preferences

This screen is displayed after clicking the *Preferences* tab on the *Setup* screen. If necessary, change these settings to suit your environment.

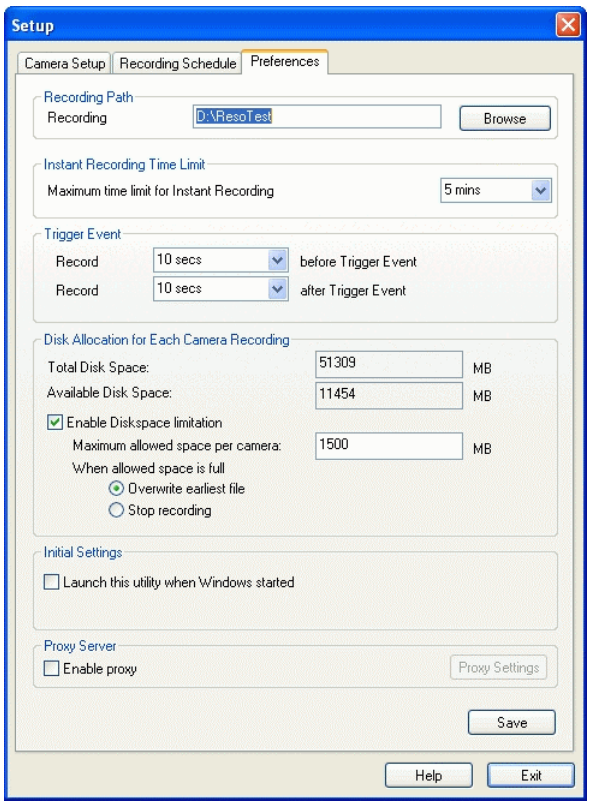


Figure 45: Preferences Screen

Data - Preferences

Recording Paths	
Recording	This is the Drive and Folder on your PC where recorded files will be placed. You need a drive which has large amounts (Gigabytes) of free space. Click the *Browse* button to select the drive and folder. Note that file names are automatically assigned, using the date and time.
Instant Recording Time Limit	
Maximum time limit for Instant Recording	This sets the maximum size of a recording which is started by clicking the *Record* button on the ***main*** screen. If the recording is not stopped manually, it will be terminated after the time period indicated here.
Trigger Event	
Record before Trigger Event	Set the time so the Utility will start recording the certain time before the Utility detects motion in a Camera's field of view.

Record after Trigger Event	Set the time so the Utility will stop recording the certain time after the Utility detects motion in a Camera's field of view.
Disk Allocation for Each Camera Recording	
Total Disk Space	This displays the total size of the disk selected for storing recordings.
Available Disk Space	This displays the available space of the disk selected for storing recordings.
Enable Disk space limitation	Enable this if you wish to limit the disk space used by video recordings.
Maximum Allowed Space	Enter the maximum amount of disk space which can be used for video recordings.
When allowed space is full.	Select the desired option for the behavior when the disk space limit is reached. • **Overwrite earliest file.** The utility will overwrite the old files if the space is not enough for recording. • **Stop Recording.** If the disk space limit is reached, no further recording is done.
Initial Settings	
Launch this utility when Windows started	Check this to have this utility start when Windows starts.
Proxy Server	
Enable proxy	If enabled, click the *Proxy Settings* button to configure the settings.

Using Playback

To access the saved files of the Camera, click **Playback** button in the Main screen, then you will see the following screen.

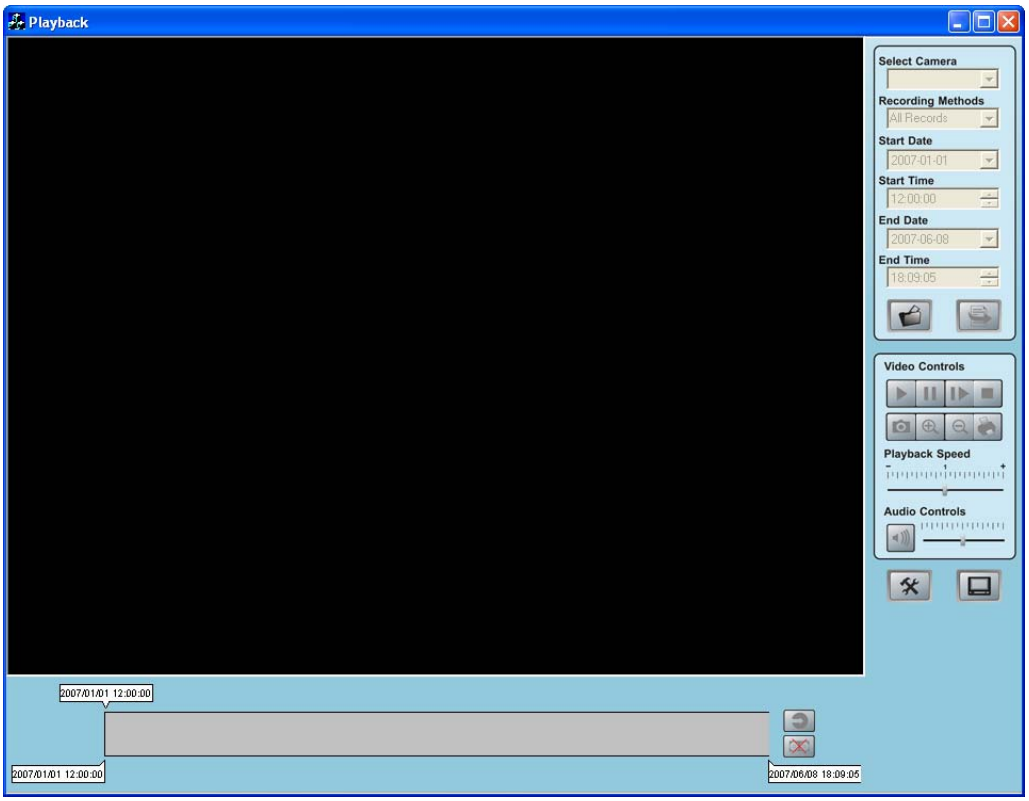


Figure 46: Playback Screen

Searching Recorded Video Files

Select Camera. Select the desired camera from the list.

Recording Methods. Select the type of the recorded file from the drop-down list that you wish to view.

Start Date/Time. The date and time the recording will be made.

End Date/Time. The date and time the recording will be ended.

Load other Cameras. Click this button to load other cameras from the network.

Submit. Click this button then it will display the list of files according to the search criteria.

Play. Use this to re-start viewing, after using the Stop or Pause button.

Pause. Use this to temporarily stop the connection to the camera

Frame by Frame. Playback the video in a frame-frame basis by clicking the mouse button.

Stop. This will terminate the connection to the camera, halting both the viewing and the recording (if in progress).

Snapshot. Click this to take a single JPEG "snapshot" image of the current video.

Zoom In. To zoom in on a section of the window, click this icon.

Zoom Out. To zoom out on a section of the window, click this icon.

Print. Click this to print the current video stream.

Playback Speed. To play a recorded file, select the desired speed.

Audio Control. To play a recorded file, select the desired volume.

Hard Disk Quota. This displays the available and used space of the disk for storing recordings.

Delete Video. To delete a recorded file, select the file and click this button.

Chapter 7

Troubleshooting

This chapter covers the most likely problems and their solutions.

Overview

This chapter covers some common problems that may be encountered while using the Network Camera and some possible solutions to them. If you follow the suggested steps and the Network Camera still does not function properly, contact your dealer for further advice.

Problems

Problem 1: **I can't connect to the Network Camera with my Web Browser to configure it.**

Solution 1: It is possible that your PC's IP address is not compatible with the IP address of the Network Camera.
Use the Windows utility to configure the Network Camera with a valid IP address.

Problem 2: **The Windows utility doesn't list any Network Cameras.**

Solution 2: Check the following:

- The Network Camera is installed, LAN connections are OK, it is powered ON and startup is complete.
- Ensure that your PC and the Network Camera are on the same network segment. (If you don't have a router, this must be the case.)
- Ensure that your PC has the TCP/IP network protocol loaded. In Windows, this is done by using *Control Panel-Network*.
  - If an entry for TCP/IP -> Network card is not listed, use *Add - Protocol - Microsoft - TCP/IP* to add it.
  - You then need to select the new entry (TCP/IP -> Network card), click *Properties*, and configure the *IP Address* tab.
  - If your LAN has a DHCP Server, you can select "Obtain an IP Address automatically". Otherwise, you must select "Specify an IP Address", and enter values for *IP Address*, *Subnet Mask*, and *Gateway*. All devices on your LAN must use compatible values. Remember that each device needs a **unique** IP Address, and the **same** Subnet Mask.

Problem 3 **When I try to connect to the Network Camera, I get prompted for a user name and password.**

Solution 3 You SHOULD be prompted for a user name and password if trying to access the *Administration* menu.
Enter the *Administrator ID* and *Password* set on the *Maintenance* screen.

If you are just trying to view Video, the User Name/Password prompt

indicates that the Administrator has restricted access to specified users. Ask the Administrator for your User Name and Password.

Problem 4 **I can't connect to the Network Camera using a Wireless connection.**

Solution 4 1) If a LAN cable is connected to the LAN port, the Wireless interface is disabled. Only one interface can be active.

2) Check that your PC and the Network Camera have compatible Wireless settings.

- Mode (Infrastructure or Ad-hoc) must be correct.
- ESSID must match.
- WEP settings must match.
- In Ad-hoc mode, the Channel should match, although this is often not required.

Problem 5 **Video quality may suddenly deteriorate.**

Solution 5 This can happen when an additional viewer connects to the Network Camera, overloading the camera or the available bandwidth. The image size and quality can be adjusted to cater for the required number of viewers and the available bandwidth.

Problem 6 **The motion detection feature doesn't send me any E-Mails.**

Solution 6 It may be that the SMTP (Simple Mail Transport Protocol) server used by the camera to send the E-Mail will not accept mail. (This is to prevent span being sent from the server.). Try using a different SMTP server, or contact your ISP to see if SMTP access is being blocked.

Problem 7 **Using the motion detection feature, I receive E-Mails which don't show any moving objects.**

Solution 7 The motion detection feature doesn't actually detect motion. It compares frames to see if they are different. Major differences between frames are assumed to be caused by moving objects.

But the motion detector can also be triggered by:

- Sudden changes in the level of available light
- Movement of the camera itself.

Try to avoid these situations. The motion detection feature works best in locations where there is good steady illumination, and the camera is mounted securely. This feature can NOT be used if the camera is outdoors.

Problem 8 **The image is blurry.**

Solution 8 Try cleaning the lens, or adjusting the *Video Quality Control* setting on the ***Video & Audio*** screen. Video created will the lower settings will contain less detail; this is the trade-off for using less bandwidth.

Appendix A

Specifications

Network Camera

Model	Network Camera
Dimens ons	90mm (W) * 35mm (H) * 90mm (D)
Operati ıg Temperature	0° C to 40° C
Storage Temperature	0° C to 40° C
Networ ‹ Protocols:	TCP/IP, DHCP, SMTP, NTP, HTTP, FTP, NTP RTP, RTSP, UPnP (Discovery only)
Networ ‹ Interface:	1 Ethernet 10/100BaseT (RJ45) LAN connectio
Wirele‹ › interface	IEEE 802.11b/802.11g compatible, Infrastructu ›/Ad-hoc mode, WEP/WPA Personal/WPA2 Personal security s› ›port, roaming support
LEDs	3
Power . ‹dapter	5V DC External
Lens	F2.0mm @F2.0 Fixed Focus lens (cell phone siz ›) in socket type

Regulatory Approvals

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

(Example - use only shielded interface cables when connecting to computer or peripheral devices).

FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment marketed in USA is retricted by firmware to only operate on 2.4Ghz channel 1-11.

CE Approvals

The Network Camera and the Ethernet Network Camera meet the guidelines of the European Union and comply with the 99/5/EEC and RTTE 99/5EG directives, including the following standards:

- EN60950
- EN300 328-2
- EN301 489-1
- EN301 489-17

This is a Class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

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Network Camera copyright information

Package source codes	License
boot loader	GPL
ARM-Linux 2.4.19	GPL
ARM-Linux-gcc 3.3.4 library	LGPL
Busy-box	GPL
cron	Public domain (BSD & Lineo http://www.lineo.com/)
thttpd-2.25b	Public domain (http://www.acme.com/software/thttpd/)
ntp-4.1.71	Public domain (http://www.ntp.org/)
ez-ipupdate-3.0.11b7	GPL
iptables-1.3.4	GPL
stunnel	GPL
wireless_tools.26	GPL
wpa_supplicant	GPL
dhcpd-1.3.22	GPL
DM9102 lan driver	GPL
libupnp-1.2.1	BSD

thttpd.c - tiny/turbo/throttling HTTP server

ntp-4.1.71 license

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Libupnp-1.2.1 License

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Version 2, June 1991

51 Franklin St, Fifth Floor, Boston, MA 02110-1301 USA

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Appendix B

Streaming Video/Audio Solution

Overview

Streaming video is a sequence of "moving images" that are sent in compressed form over the Internet and displayed by the viewer as they arrive. With streaming, a Web user does not have to wait to download a large file before seeing the video or hearing the sound. Instead, the media is sent in a continuous stream and is played as it arrives.

Streaming Video/Audio through Internet Camera

To snapshot a JPEG image from the Internet Camera with specified resolution and quality:

http://<ip>/img/snapshot.cgi?[size=<value>][&quality=<value>]

Size = 1 (160*120)

2 (320*240)

3 (640*480)

Quality = 1 (Very high)

2 (High)

3 (Normal)

4 (Low)

5 (Very low)

To stream M-JPEG video from the Internet Camera (M-JPEG mode only)

http://<ip>/img/mjpeg.htm

To stream video through the RTP/RTSP protocol from Internet Camera (MPEG-4 mode only)

rtsp://<ip>/img/media.sav

Note: Users need to specify the desired protocol in the players.

To snapshot a JPEG image (160*120, very low quality) through a mobile phone:

http://<ip>/img/mobile.cgi